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THE
SCIENTIFIC AMERICAN,
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Rail-Road News.

Railroad Law.

In the proceedings for an injunction against the Hudson River Railroad, by Hamilton Wilkes, on the ground that in assessing damages for lands taken, the company had proceeded under their charter instead of under the General Railroad act.

Judge Edwards has decided that the charter called for three commissioners, whose residence and the mode of nomination were not fixed. The general act for five, who should reside in the country, where the lands lie, two from the nominations of the land holders, a like number from the nomination of the company, and the fifth by the court.

The court held, delivering an able opinion, that the mode of fixing the damages provided by the charter, stood unaffected by the General Act.

The injunction having been denied, the company will of course proceed with the construction of the road over the lands acquired under these proceedings from Mr. Wilkes, without further interruption. The same order was also made in the case of Mrs. Margaret Livingston.

Railroad Opening in Great Britain.

It appears that at the end of 1849 there were about 6,030 miles of railway which had been authorised by Parliament, and still remained to be completed; that the principal part of the lines opened during the year were among those authorised in 1845 and 1846, and that the proportion of lines sanctioned in those years, the powers for constructing which have not been abandoned, is very great, being one-third and three-fourths respectively, and a still larger proportion for the year 1847. It is, therefore, to be inferred that no great length of new line has been commenced since last year, and that probably only about 1,000 miles out of the 6,030 miles which still remained to be opened at the end of 1849 were in progress of construction at that time.

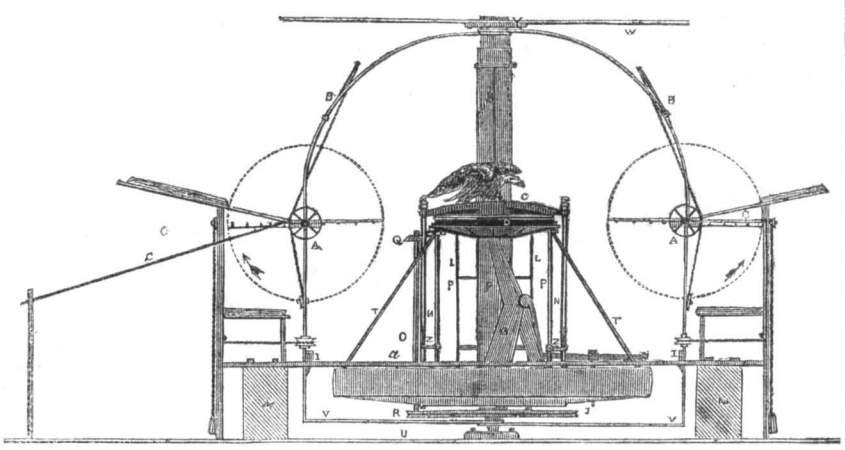
Michigan and Indiana Railroad.

John B. Jervis. Esq., late Chief Engineer of the Hudson River Railroad, has just been appointed to and has accepted the office of Chief Engineer of the Michigan Southern Railroad, and of the Northern Indiana Railroad, which Companies are together engaged in constructing the continuous line of railroad from Lake Erie to Chicago. It is intended to have the entire line finished within two years, by which time it is believed the road around the south shore of Lake Erie will be completed, and a continuous chain of railroad communication be thus secured from Chicago, and perhaps Galena, to the City of New York.

The Toronto and Lake Simcoe Railway.

This great project of a road from Ontario to Huron, by way of Lake Simcoe, is being industriously pushed forth. We see it stated that the County Council of Simcoe have voted a grant of £50,000 in debentures, for the promotion of the enterprise, and calls upon the corporation of Toronto to come forward with £100,000, which is the balance needed to make up the £500,000 necessary to insure the completion of the whole line. Towards this subscription solicited from the corporation, several of the most wealthy citizens of Toronto have already contributed about £13,500.

ROTARY PLATEN PRINTING PRESS.---Fig. 1.



This improved Printing Press is the invention of Mr. Mervin Davis, a practical and ingenious printer, formerly of Boston, but now residing at No. 150 Fulton street, this city. The main principle of this invention is to print on a plane not a curved surface, and yet combine a rotary principle. The rotary principle here combined, however, is horizontal, not vertical circular, and the bed is a plane. It is well known that what is called "*good* printing" cannot be performed on rotary cylinder presses, but a far greater speed is obtained on them,—hence, for newspapers and other quick work, they stand pre-eminent. This press is intended to combine a greater amount of speed than any which now prints on a plane surface.

Figure 1 is a side view, figure 2 is a view from above, and figure 3 represents a portion of the press running from the under part of the "bed" to the shaft, and containing the distributing rollers, &c. The same letters refer to described parts. W and U, fig. 1, represent the floor and ceiling of a room; F is a strong iron shaft, extending from the floor to the ceiling, the lower end working in a step, X, the upper, in the box, Y. On the lower part of this shaft is fitted a strong iron wheel, four or five times the width of the bed in diameter. On the rim of this wheel (a segment of which, *n*, shown in fig. 2, is cast of sufficient strength to resist the strain upon it) rest the impression levers, G, and the bed (E, fig. 1.) The rods, T T, are intended to brace the bed. The opposite side is made heavy enough, as shown in fig. 2, to balance the weight of the bed, platen, levers, &c., so that the press will run steadily. The platen, C, is supported by an arm running from the shaft, braced by the rod, S, figure 1. The rods, N N, running

Figure 2.

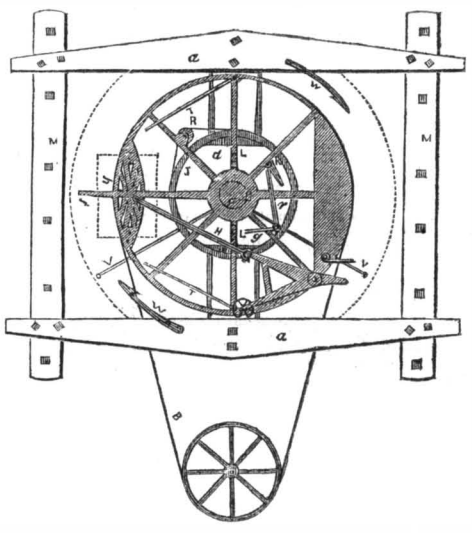
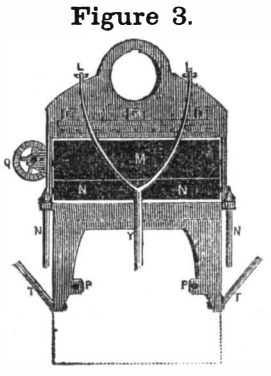


Figure 3.



from the projecting parts of the platen to the segment of the large wheel, are connected by joints with the latter, and made to oscillate by the spurs, Z Z, fastened to the sliding rods, P P, to the upper ends of which the bed is secured. The upper ends of the rods, N N, are thrown back by the descent of the bed, to allow the sheets of paper to pass between the bed and the platen; but while the sheets are receiving impressions, these rods connect the platen with the segment of the larger wheel; they occupy a position similar to that of the rods or bars running through the columnar part of the frame of a "Washington" or "Smith" press. The levers, G, below the bed, are moved by the levers, H, shown in fig. 2, which are worked as the large wheel revolves by the cams *a a*, fastened to the beams, M M; these beams, which raise the cams slightly above the upper edge of the rim of the large wheel, are firmly bolted to the floor of the room. The inking rollers, D, (fig. 1,) are thrown on and off the form by the levers, L L, connected with the lever, *r k*, by the rod, *g*, a portion of which is shown in fig. 2. The lever, *r k*, is moved by the cams, *d*, within the stationary wheel, J; this wheel is held in its place by the arms on its sides running below the cams, *a a*. The letters L L show where the lower ends of the levers, designated by the same letters in fig. 1, rest on the arms of the large wheel. The distributors, shown by the letters M and N, in fig. 3, are driven by the cog-wheel, Q, fastened to the shaft, O, in fig. 1, on the lower end of which the wheel, R, is located. A band runs from this wheel to the stationary wheel, J, which being much larger in diameter, renders the distribution of the ink perfect. The letter, Y, (fig. 3,) shows a portion of the forked-arm, in which the inking rollers are placed. The upper ends of the oscillating rods, N N, and of the braces, T T, are shown in this figure. The dotted lines show the location of the bed, and the letters, P P, are the holes through which the sliding rods of the bed run.

The sheet-catchers, A A, (fig. 1) are held in the frames, V V, which are connected at the top and at the lower end of the large shaft. These frames have a reciprocating motion, being caught alternately at the points, I I, by the spring, *i*, (fig. 2), and moving with the large wheel until the sheet receives an impression, when they return to their original positions. The springs, B B, then give the sheet-catchers a semi-revolution, throwing off the printed sheet and throwing on a blank one simultaneously. C C are sheet-flyers; W W, (fig. 2) are prongs, which disengage the frames, V V, after the sheet has received an impression. The large wheel is driven by the band, B.

To Imitate Rose Wood.

Take half a pound of logwood, boil it with three pints of water till it is of a very dark red, to which add about half an ounce of salt of tartar; and, when boiling hot, stain your wood with two or three coats, taking care that it is nearly dry between each; then, with a stiff flat brush, such as you use for graining, make streaks with a very deep black stain, which, if carefully executed, will be very near the appearance of dark rosewood.

The following is another method: Stain your wood all over with a black stain, and when dry, with a brush as above, dipped in the brightening liquid, form red veins in imitation of the grain of rosewood; which will produce, when well managed, a beautiful effect.

A handy brush for the purpose of veining may be made by taking a flat brush, such as you use for varnishing, and cutting the sharp points off the hairs, and making the edge irregular; by cutting out a few hairs here and there, you will have a tool which, without any trouble, will imitate the grain with great accuracy.

To Imitate Black Rosewood.

The work must be grounded black; after which take some red lead well ground, and mixed up as before directed, which lay on with a flat stiff brush, in imitation of the streaks in the wood; then take a small quantity of lake, ground fine, and mix it with brown spirit-varnish, carefully observing not to have more color in it than will just tinge the varnish; but should it happen, on trial, to be still too red, you may easily assist it with a little umber, ground very fine, or a small quantity of Vandyke-brown, which is better; with which pass over the whole of the work intended to imitate black rosewood, and it will have the desired effect: indeed, if well done when it is varnished and polished, it will scarcely be known from rosewood.

To make Effervescing Lemonade.

For one dozen of bottles, take of sugar 4 ounces, essence of lemon 36 drops, bicarbonate of potash six drachms, and dissolve these in clean water sufficient to fill the bottles; then add 35 grains of citric acid in crystals to each bottle, and tie down the cork instantly. It is fit to drink next day.

Suspension Bridge at Lewistown.

This work, we are informed, which will be the most stupendous of its kind in the world—exceeding, by more than one hundred feet, the span of that at the Falls, seven miles above—is being rapidly completed. The abutments or pillars on which the wire ropes are drawn, are nearly finished on the British side. The bridge occupies a commanding point upon the river, and from it is presented one of the grandest and most picturesque natural scenes upon the globe. Mr. Serrell, C.E., of this city, the engineer who is erecting this structure.

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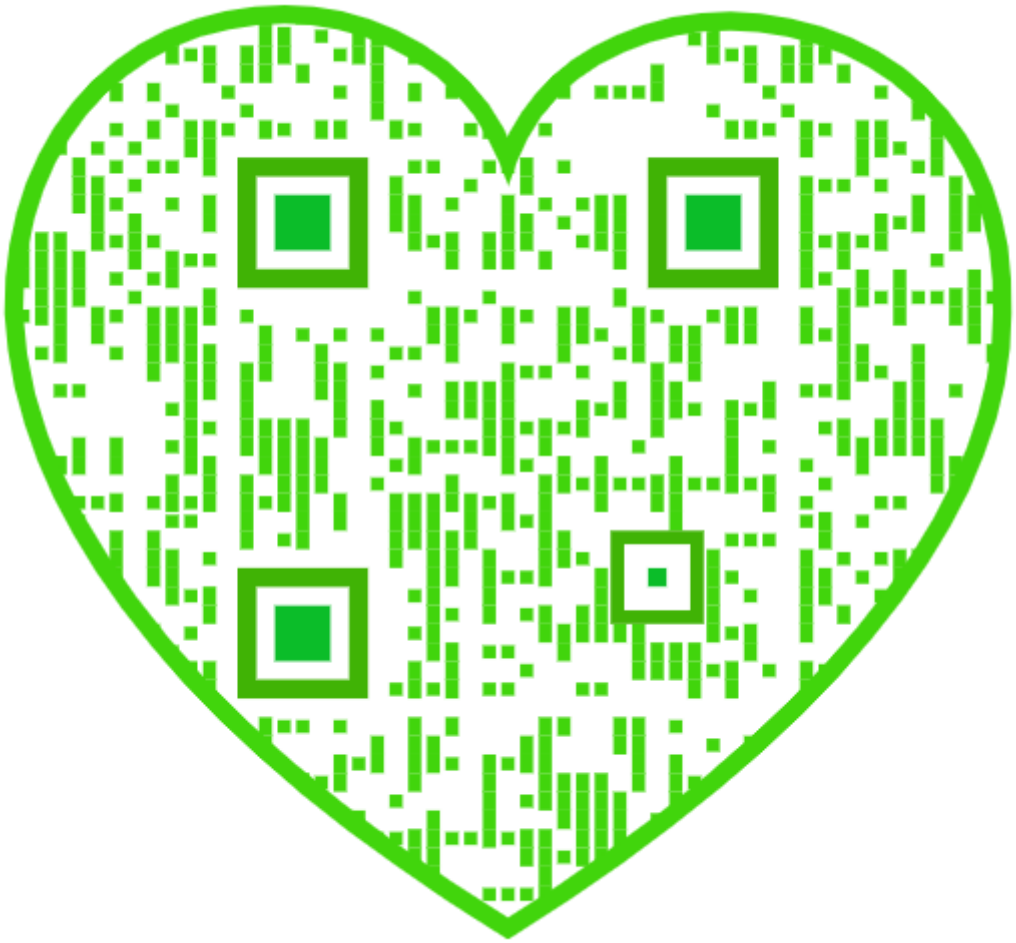

Miscellaneous.

British Association for the Advancement of Science.

GEOMETRY AND THE HUMAN FORM.

D. R. Hay, F. R. S. E., read a paper "On the Geometrical Principles of Beauty in general, and more particularly as applied to Architecture and the Human form." It is based upon the supposition that the eye is capable of appreciating the exact sub-division of spaces, just as the ear is capable of appreciating the exact sub-division of intervals of time; so that the division of space into an exact number of equal parts, will affect the eye agreeably, in the same way that the division of the time of vibration in music into an exact number of equal parts agreeably affects the ear. The basis of his theory, accordingly, is, that bodies are agreeable to the eye, so far as symmetry is concerned, whenever the principle angles are exact, submultiples of some common fundamental angle. The author proceeded to apply his theory to the human figure, and seven diagrams were exhibited. The line which represents the human figure being once assumed, every other line is determined by means of angles alone. For the female figure, those angles are, one-half, one-third, one-fourth, one-fifth, one-sixth, one-seventh and one-eighth of a right angle and no others. Every line makes with every other line a good angle. The male figure was stated to be constructed upon the female figure by altering most of the angles in the proportion of 8 : 8; the proportion which the ordinary untempered flat seventh bears to the tonic.

VIEWS OF THE MOON.

Mr. Nasmyth made some observations on the lunar surface and its relation to that of the earth. His address was illustrated by a number of very fine drawings, giving a most beautiful and accurate representation of the appearance of the moon as seen through a large telescope. He said that in endeavoring to become acquainted with the structure of the moon, the first step he had taken was to make a comprehensive map of the entire lunar surface, to which he begged to direct the attention of the section. It would be seen at once that the most remarkable feature of the lunar surface was the great number of rings which appeared almost entirely to cover it, overlaying, intersecting and apparently elbowing each other out of the way. It was now pretty well demonstrated that these rings were the result of intense volcanic action at some remote period. In order to give an explanation of the causes which had led to this very remarkable display of volcanic action, it was necessary to keep in view a fact pretty well established, that the earth, at least, had been originally in a hot and molten condition. The evidence for the same fact as regards the moon, was even stronger. Setting out with this idea, he would proceed to draw conclusions from it. On referring to the map, it would be observed that in six-eighths of the lunar volcanic mountains, there was a cone in the centre of the ring or crater. The same thing was observed on extinct volcanic mountains on the earth, the cone in the centre being the fruit of the last efforts of the expiring volcano. Another thing that was apt to strike us, as a remarkable feature of the lunar mountains, was their enormous vastness, one of the rings being 60 or 80 miles from side to side, and several being 40 to 50 in diameter. The reason of this was to be found in the force of gravitation being reduced to an immense extent on the surface of the moon as compared with the earth, the mass of the moon being only one sixty-fourth part of that of our globe. Another remarkable feature of the lunar surface was the great multitude of these volcanic mountains. In order to explain this, it should be kept in view, that while the ratio of the mass of the moon was to that of the earth as 1 to 64, the ratio of its surface to the surface of the earth was as 1 to 16; and as he would show immediately, this fact was sufficient to explain the greater number of volcanic discharges on the surface of the moon as compared with the earth. He had said before that the moon was originally in a hot and molten condition. When the cooling process commenced, the exterior crust of course cooled first, and consequently contracted, grasping, and tightening, and crushing the interior mass, which was, as it were, hide-bound. The result was, that the confined mass within burst its covering and sputtered out the whole of the matter that was to be seen on the moon's surface. Mr. N. illustrated this part of his address by the fragments of glass globes which had been filled with hot water, and then plunged into cold. The water within, confined by the cooling glass, had burst through, producing cracks arranged in precisely the same way as the corresponding cracks on the surface of the moon. The address concluded with an explanation of the elevated ridges of mountains which appeared to run over the moon, some of the ridges being of considerable length. This was explained on the supposition that after the interior mass had cooled, the outer crust fell in, and its surface being larger than that of the interior mass, the result had been that the superabundant matter protuberated, and formed ridges of hills.

Professor Nichol said, he was sure he was giving utterance to the opinion of every one present, when he said that the drawings which had been exhibited by Mr. Nasmyth were the most beautiful and faithful representations of the surface of the moon that had ever been constructed. He had little doubt that Mr. Nasmyth's investigations would ultimately lead to the most important results, especially in relation to the science of geology.

FORCE OF WAVES.

Mr. Stevenson made a statement of the result of certain observations made by him on the force of the waves with reference to the construction of marine works. In designing such works the engineer has much difficulty in ascertaining the force of the sea with which he has to contend, and hitherto his professional experience has been his only guide in making such designs. The object of Mr. Stevenson's experiments is to ascertain, by means of a self-registering instrument, the force of the waves per square foot of surface. The instrument consists in a disc on which the sea infringes, and the import is rigistered by means of a spiral spring. The result of the experiments hitherto made, may be stated to be a force of about 1½ tons per square foot for the German ocean, and of three tons for the Atlantic ocean, the experiments from which these results were obtained being made at the Bell Rock and Skerryvore Lighthouses. In proof of the correctness of these results Mr. Stevenson referred to the circumstance that at Bell Rock the water has been known to rise to the height of 106 feet, and that at Plynish in Argyleshire, beams of wood were broken measuring twelve inches square, and indicating a force of one and half tons per square foot.

REVOLVING LIGHTS.

Mr. Swan then brought forward his communication on the "Limits to the Velocity of Revolving Light-House apparatus, caused by the time required for the production of Luminous Impressions on the Eye." Mr. Swan having referred to the well known fact that the impressions of light remain for a definitive portion of time, about one tenth of a second, said that no experiments so far as he knew had been made as to the time required for making the impression. His improvement had been undertaken with this view. The brightness of the impression he found to be in proportion to the time of making it. When the time was one-fiftieth of a second, for example, the brightness of the impression was about one-tenth of the brightness of the full light. From this Mr. Swan inferred that the light could not exceed a certain rate of revolution, otherwise a sufficiently vivid impression could not be made upon the eye.

INVENTION OF TUBULAR BRIDGES.

A communication was received from M. Jules Guyot, of France, claiming priority of the invention of Tubular Bridges, and contending that English engineers had taken their ideas from him.

Gen. Pasley said that Mr. Stephenson laid claim to his invention of iron girders, great or small, and on this he rested his claim to the Tubular Bridge, and just as a telescope of a foot long is as much a telescope as Lord Ross's, so was Stephenson's first idea to his last—he was the inventor of the Tubular Bridge.

ASTRONOMY.

Sir David Brewster, the President, delivered the address—one of the most splendid we have ever read. The following is an extract, in which a high and most deserved compliment is paid to Daniel Kirkwood, of Pennsylvania.

"The planet Neptune was discovered before a ray of its light had entered the human eye; and by a law of the solar system just discovered, we can determine the original magnitude of the broken planet long after it has been shivered into fragments; and we might have determined it even after a single fragment had proved its existence. This law we owe to Mr. Daniel Kirkwood, of Pottsville, an humble American, who, like the illustrious Kepler, struggled to find something new among the arithmetical relations of the planetary elements. Between every two adjacent planets there is a point where their attractions are equal. If we call the distance of this point from the sun the radius of a planet's sphere of attraction, then Mr. Kirkwood's law is, that in every planet the square of the length of its year, reckoned in days, varies as the cube of the radius of its sphere of attraction. This law has been verified by more than one American astronomer, and there can be no doubt, as one of them expresses it, that it is at least a physical fact in the mechanism of our system. This law requires the existence of a planet between Mars and Jupiter, and it follows from the law that the broken planet must have been a little larger than Mars, or about 5,000 miles in diameter, and that the length of its day must have been about 57½ hours. The American astronomers regard this law as amounting to a demonstration of the nebular hypothesis of Laplace; but we venture to say that this opinion will not be adopted by the astronomers of England. Among the more recent discoveries within the bounds of our own system, I cannot omit to mention those of our distinguished countryman, Mr. Lassels, of Liverpool. By means of a fine 20 feet reflector, constructed by himself, he detected the satellite of Neptune, and more recently an eighth satellite circulating round Saturn—a discovery which was made on the very same day by Mr. Bond, Director of the Observatory of Cambridge in the United States."

We thus conclude all the extracts we intend to give of the proceedings of this Association, except on the Patent Laws, reserved for next week.

A New Sugar Cane.

A new and valuable specimen of sugar cane, called the crystaline, has been introduced into the parish of Plaquemines, La. It came from Cuba. It is a very large cane, with a tough rind and a remarkably large and firm eye, indicating its capacity to stand frost, and it seems to be very juicy, has every appearance of a very productive cane, and one that will suit the climate of New Orleans. The Picayune says it has been introduced into other parts of the State, and grows abundantly and vigorously. The kinds of cane cultivated in Louisiana are five—the Bourbon, the green ribbon, the red ribbon, the Otaheite, and the Creole cane. The Bourbon and the red ribbon are the most extensively cultivated. Both kinds withstand a slight frost, and more so than the others. As the Crystaline cane, according to the account given of it, appears to be excellently qualified to resist frost, and to be very juicy, vigorous and prolific, it will doubtless be generally welcomed by the planters.

A Scientific Hatching Machine.

A Hatching Machine has been invented in France, by Mr. Vallee, which is described by the Paris correspondent of the Intelligencer. A drum enclosing a warming cylinder forms the basis of his system. He introduces warm air into the drum in which the eggs are deposited, and by circular openings gives access to currents of cold air. It is by the distribution and vigorously rational combination of warm and cold air that he obtains that dampish temperature in which lies the secret of incubation, from which results the development of the embryo in the egg. By this instrument artificial hatching is successfully carried on in every state of the atmosphere and at all seasons. But after the burst of the shell, a mother must be provided for the young. M. Vallee's ingenuity thus provides for this emergency. A lamb skin is fastened by one extremity to a plank, and made to open at the other like a pair of bellows. This affords a cover for the little ones and keeps them warm as would a veritable mother hen. The result of M. Vallee's experience touching the period of incubation necessary for the various species of eggs is curious and worthy of record. Here it is—Chickens, 21 days; partridges, 24 do.: pheasants, 25 do.; guinea hen, 25 do.; common duck, 28 do.; peafowls, 28 do.; barbary ducks, 30 do.; geese, 30 do. The degree of heat required is from 40 to 50 degrees French or Centigrade scale, equal to from 104 to 122 Fahrenheit. A small lamp of the Locatelli system suffices to raise the temperature of the apparatus to the proper elevation. With such a machine every farmer could have a fine supply of fowls.

A Grand Explosion of a Chalk Cliff.

A grand explosion recently took place at Seaforth, near Brighton, England: it was no less than the throwing down a huge cliff into the sea to form a barrier against its future ravages. A number of sappers and miners had been employed for seven weeks, making the necessary preparations; 16 tons of gunpowder were deposited in the various shafts, and 10,000 people assembled to witness the explosion. The gunpowder was fired from voltaic batteries, when suddenly the whole cliff along a range of 120 feet, bent forward toward the sea, cracked in every direction, crumbled into pieces, and fell upon the beach in front, forming a bank down which portions of the cliff rushed for several yards, like a stream of lava, into the water. The whole multitude were paralyzed for a few moments, as it shook the ground like an earthquake. In Seaforth, three-quarters of a mile distant, one chimney fell, and glasses and dishes were violently shaken on the tables. 300,000 tons of the cliff were thrown down. This is the greatest explosion, as a scientific experiment, which has ever been performed.

Bridge Across the Straits of Dover.

The Paris Siecle contains the following—

"The Academy of Sciences has at present under considerations a plan of a most extraordinary character, being neither more nor less than a suspension-bridge, between France and England. M. Ferdinand Lemattre proposes to establish an aerostatic bridge between Calais and Dover. For this purpose he would construct strong abutments, to which the platform would be attached. At a distance of 100 yards from the Coast, and at distances of every 100 yards across the Channel he would sink 4 barges heavily laden to which would be fixed a double iron chain of peculiar construction. A formidable apparatus of balloons of an elliptical form, and firmly secured, would support in the air the extremity of these chains, which would be strongly fastened to the abutments on the shore by other chains. Each section of 100 yards would cost about 300,000 francs, which would make 84 millions for the whole distance across. These chains, supported in the air at stated distances, would become the support of this fairy bridge, on which the inventor proposes to establish an atmospheric railway. This project has been developed at great length by the inventor."

Since the Britannia Bridge was constructed it is wonderful how many stupendous paper projects have been brought forward to eclipse it.

Purifying of Gas.

Mr. Prosser, C. E., 28 Platt st., this City, is assignee of the Patent for purifying gas, described in Number 2 and will be pleased to assist in the introduction of this improvement, into any of our gas works.

Notice.

We will publish a plan next week for the establishment of a line of Telegraph across the Atlantic.

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For the Scientific American.

The Voltaic Battery.

NUMBER III.—(Continued.)

The battery of Prof. Grove is the same in principle as Daniell's, but nitric acid is employed in the place of sulphate of copper. As nitric acid will dissolve all the metals except platinum and gold, one of these metals must be used for the conductor, or at least that portion which dips into the acid. The acid does not throw off hydrogen, but, like the saltpetre of copper, forms new compounds with it. The action which goes on is very complicated and varies continually, at times forming water and hypo-nitrous acid or nitrous acid, nitric oxide, oxide of nitrogen, ammonia, or nitrate of ammonia, or perhaps all these at once. The battery is generally formed of a porous cup placed in a cylinder of zinc, and this again in a mug or tumbler; in the porous cup is placed a piece of platinum and nitric acid, in the mug is sulphuric acid and water. This instrument is extremely active; I have not compared its power with Smee's, but think it much exceeds it. It is admirably suited for the magnetic telegraph, and some experiments of the lecture table; but it cannot maintain its action for more than half a day; it cannot be set up in the work-room, on account of the nitrous fumes which would be fatal to the operator; it is, moreover extremely liable to local action from the nitric acid penetrating the porous cup and attacking the mercury; and is altogether extremely unpleasant and laborious in its manipulations. Theoretically, its cost is only one-half of Smee's for the same power, but practically, I am afraid that it will exceed Smee's in cost, for maintaining its action.

Before we can estimate the cost of the various batteries, it is necessary to know what is meant by the terms *quantity* and *intensity*, and also form some conception of chemical equivalents.

Quantity is the voltaic action considered simply as more or less, and is always expressed by the amount of zinc consumed in a given time.

Intensity is that capacity of the battery that induces its action on other bodies. To those who are familiar with mechanical problems, quantity may be compared with weight, and intensity with velocity; it is easily understood that mechanical power is weight multiplied by velocity, and so with every battery—its power is its quantity multiplied by its intensity; let the difference between weight and velocity, or quantity and intensity be thus explained:—suppose a cannon ball of 62½ pounds weight, hung by a string and moving at the rate of one foot per second, should strike against a man's head, it would not cause him any serious injury; but if the ball were only one ounce, and moving at the rate of one thousand feet per second, it would pass through his head.

Every man has a true conception of intensity of motion and its effects, for although a man might be induced to let a 62½ pound pendulum swing against his head, yet he could not be persuaded to have a musket ball fired through his skull. But the ball and the bullet have the same mechanical power; it is the same with two equal voltaic powers—the one may not be observed, while the other is awful in the extreme. The great Farraday has shown that there is more lightning passing from a silver spoon to our lips, in the act of eating an egg, than there is in the fiercest flash that astounds the sentient creation. If to the voltaic power of a large Smee's battery could be given the intensity of that derived from the heavens, it might be capable of rending the globe itself.

The intensity of every battery is constantly the same, but the quantity is continually varying, and consequently, as the power is the quantity multiplied by the intensity, the power is continually varying. A battery of high intensity will induce its effects through a longer conductor, or decompose a more stable compound than one of low intensity. Intensity can be increased to any degree by combining many batteries together by their dissimilar ends or poles, as the zinc of one to the silver of the next, and so on; in this way a great many batteries are sometimes placed in a box and the whole called one battery, or a battery of so many pairs. But however great we may increase the intensity by combination, the quantity will remain the same, for quantity is always expressed by the amount of decomposition at any one point of the conducting line; hence, if we combine large and small batteries together, the whole will be reduced to the capacity of the smallest.

The quantity is not only the same in every part of the compound battery, but also in every part of the conductor, thus if a thousand batteries were connected together by a thousand miles of wire between each, and the terminal ones by a million of miles of wire and thousands of decomposition cells, the quantity would be the same in every battery, in every inch of wire, and in every decomposing cell; this is a most wonderful feature of the battery, that distance does not make the action less than at the fountain-head. Heat, light, sound and gravitation decrease with the squares of the distance. But if we could carry the battery wires to the ends of the universe the action would be the same in every part. Contemplated in this light, galvanism is a sublime and fearful study,—the battery seems to be the recipient of some potent force of the spiritual world, and its action to tie earth to heaven. Here science appears standing at the source of creation, and man is warned that he is at the door of the laboratory of the Omnipotent.

VOLTA.

Scientific Memoranda.

IMPROVEMENT OF THE OHIO RIVER.

The U. S. Senate has voted $20,000 for an experimental examination, with a view to some important improvements of the navigation of the Ohio River, having been induced to vote this sum by the merits of a scheme recently presented by Mr. Ellet, C. E. Mr. E., in a recent paper, constituting one of the Smithsonian contributions to knowledge, says that less than a million and a quarter of dollars will suffice to supply the Ohio with a depth sufficient for boats of five feet draught; to carry an open and permanent river navigation up the Allegheny to Franklin, and a slack water navigation, during three-fourths of the year, from Franklin to the line of the Erie Railroad in New York; improve the navigation of the Monongahela in Virginia, and extend that of the Kanawha 70 or 80 miles above Point Pleasant, supplying water powers of unrivalled capacity and permanence, on numerous lines of steamboat navigation, and curbing most essentially the destructive power of the floods. The total discharge of the Ohio in ordinary low water, he says, is but 6,000,000 cubic feet per hour.

"A pipe, three feet in diameter, will discharge very nearly 1,000,000 cubic feet per hour under a head of 60 feet. Six such pipes, then, placed on a dam only 60 feet high, and provided with proper valves, would emit water enough to double the quantity flowing down the Ohio at its usual summer stage. And if there were three such dams on different streams, and 12 pipes in each, and one man to superintend each dam, and obey the telegraphic signal to open or close the valves—or an equipment equal to three dams, no higher than have been already built in this country, and 36 pipes equal in diameter to the mains in Broadway, and three men to manage the whole—the quantity of water could be increased six-fold, and the navigation could be maintained above five feet during all ordinary droughts. At the same time such is happily the form of many of the western valleys, that dams of double this height can be often erected without injury to any appreciable amount of property, improved or susceptible of improvement."

This is one of the most stupendous and magnificent projects of the age.

WONDERFUL BRIDGE.

Near Clermont, in the department of Puy de Drone, in France, there are wells, the waters of which are of such a quality, that any substance laid on them, soon contracts a stony crust. The most remarkable of these is that in the suburb of St. Alier, which has formed a famous stone bridge mentioned by many historians. The bridge, indeed, is a rock, composed of several strata, formed during the course of many years by the running of the incrustating waters of the spring. It has no cavity or arches, till for about sixty paces in length, where a rivulet forces its way through. The inhabitants of these parts, in order to lengthen this wonderful bridge, have diverted the brook out of its channel, and made it pass close by a pillar formed by the spring, through which means they have caused the spring to form a second arch; and thus they might produce as many arches and pillars as they please. But the stream being divided, its deposition of lime is consequently diminished, and the incrusting effect impaired. It is the only water used for drinking in this suburb, and no bad effect is found from it.

COTTON WORM.

The discovery has been recently made in Mississippi, that the great enemy of the cotton plant, the worm, is produced from a fly, resembling very much the candle fly, except that here in our cotton fields it assumes every variety of color. The planters here are pretty well confirmed in this opinion from experiments recently made. The fly has been caught and confined in a small box, where it deposited its eggs, and from which the veritable cotton worm made its appearance. Planters are now trying experiments to destroy the fly, and thereby prevent the worm. The fly makes the deposit of its eggs in the bud or bloom of cotton, from which the worm, under the influence of a warm moist atmosphere, is hatched out, and being of quick growth, descends and commences its work of destruction by perforating the boll and cutting off the forms or squares. Now for the manner of destroying the fly:—the experiment is now being tried in two ways, first, by topping the cotton stalk and carrying the bud containing the eggs out of the field, and burning or otherwise destroying them; and second, by placing plates, filled with molasses, all over the field, at least one plate to every acre. The plates are placed on stands on a level with the top of the cotton, and upon stumps, as may be most convenient. The molasses attracts the fly in large quantities, and when once in they can't get out, but stick and perish.—[Mobile Her.

DEATH OF LIEUT. GALE, THE AERONAUT.

The Bordeaux papers contain details of the death of Lieut. Gale, the aeronaut. He ascended upon the back of a pony, and, at a short distance from the city, made a successful descent. The pony was detached, and, while in the act of exhausting the remaining gas, his anchor gave way, and the balloon, being relieved of its chief weight, rose suddenly. A tree by which the anchor held, snapped, and the shock upset the car. The lieutenant clung to the ropes, and in this state was carried a mile and a quarter, when he dropped, either with the balloon or before it fell. His dead body, with all the limbs broken, was found in a wood. He has left a wife and eight children. He was engaged for twelve nights at £90 each, free of expense. It is said that the Prefect of Police in Paris, intends to prohibit balloon ascents out of the usual mode of performance.

An invention has recently been patented in England, called the Autographic Press, by which a letter written on prepared paper can be transferred by a short process to a metallic plate, from which any number of copies may afterwards be taken on common paper, and by ordinary pressure.

The great gun of the deserted city of Beejapore, in the East Indies, is about to be transported to Europe, and will find a place in the Exhibition of 1851. The weight of the gun is upwards of 42 tons—a tremendous specimen of Oriental ordnance.

PLUMBAGO.

A seam of black lead has been discovered in Connecticut, near the Housatonic railroad; specimens of this mineral have been received in New York.

A model of London has been made for the Great Exhibition; it is on a scale of 8 inches to the mile, and in all, contains 96 square feet. It contains the exact situation of all the public buildings, churches, bridges, &c, and it shows the different elevations of the streets.

Distilling Improvements.

A patent has lately been taken out in England for an improvement in distilling which appears to be different from any process now employed. The improvement is as follows: If barley is employed, submit it to heat by any convenient and suitable means, until it has lost about 12½ per cent. of its weight, being careful not to let the temperature be so high as to burn or scorch the grain: when cold, grind and mix with it one-eighth its original weight of malt, and brew in the usual way; then add about 4lbs. weight of the soda of commerce, dissolved in water, to each quarter of barley if it has been previously treated in the manner hereinbefore described. Should, however, the barley not have been so treated, then about 3½ lbs. in weight of the soda will be sufficient; mash in the mash-tuns for half an hour longer; let the wort run into the fermenting backs; when the temperature of the wort in the fermenting backs has fallen to below 80° Fah., add the usual quantity of yeast; when the fermentation has commenced, close tightly the fermenting backs and fill the refrigerator half full of water, adding soda thereto. The agitating apparatus in the fermenting back is put in motion for the purpose of stirring and agitating the wort under the process of fermentation, every five or six hours, until the fermentation has ceased, or until the specific gravity of the liquid is reduced to that, or less than that of water; in this state add to the liquid about 6lbs. in weight of catechu dissolved in hot water, or 1½lbs. of concentrated sulphuric acid diluted with two gallons of water, or such quantity of the said acid, or of any acid diluted with water, as will be sufficient to neutralize the soda previously employed; the wine or wash is now ready for the distilling process. The liquid in the refrigerator may, however, be employed in the before-described operations instead of the soda of commerce, using so much, however, of the liquid as contains the requisite quantity of soda.

When sugar is employed for the manufacture of spirits, dissolve 1 cwt. of sugar in 100 gallons of water, then let it run into the fermenting backs, adding thereto 2 per cent. of yeast; to promote the fermentation, dissolve in the mash-tun 1½ lbs. weight of soda in one gallon of water, and supply the liquid in the fermenting backs with it, so that the whole shall be in the back on the third day; or put ½ a lb. of carbonate lime (chalk or marble), into the fermenting back, to produce the same effect; then proceed in manner as hereinbefore described for barley. When the fermentation is finished, add to the liquid 2½ lbs. of catechu or nine ounces of sulphuric acid, diluted with two gallons of water, or 2 lbs. of acetate of lead; when molasses is employed for the manufacture of spirits, the process is carried on in the same manner as when sugar is employed for the manufacture of spirits; when it is required to obtain by distillation a very fine but peculiar spirit, employ tartaric acid or citric acid, or the juice of any fruit containing those acids (as lemon or lime juice), mixing the acid with the liquid before the process of fermentation, or with the wine or wash, after the process of fermentation, in the proportion of three-quarters of a lb. of the acid, or the relative quantity of the juice of fruit, containing that quantity of acid, to every 112 lbs. of the solid saccharine matter employed. When the above acids are employed, omit the use of both the soda and the carbonate of lime, or previously neutralize them. In distilling, a series of coiled pipes is run through the vessel (which may be of wood) which contains the wash, and this imparts heat enough to set free the spirits, by hot water or steam being sent through the coiled pipes from a boiler. Hot water makes the best spirit.

Wild Rice.

This remarkable production about Green Bay, this season is unusually abundant, and the Menominees are now engaged in harvesting and storing it for winter.

Pittsburg has now two bodies of night watchmen, one appointed by the Mayor, and the other by the Police Committee. Their duties, so far, have been confined to arresting each other.

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New Inventions.

Capt. Taggart's Aerial Propeller.

Captain John Taggart has arrived in this city, and is at Dunlap's Hotel, Fulton street, with his aerial propelling apparatus, the same with which he made his ascent at Lowell on the last 4th of July, and with which he made an ascent at Boston. We have examined his apparatus, and we believe it to be the most simple and effective that has as yet been brought before the public. He employs a little car, which is shaped like a small boat, and has it suspended in the usual way below the balloon. Attached to this car there are two propeller fans, one on each side, which are shaped nearly like a volute, and these he can set to any angle, by their having pinions on their inner ends, which can be moved round on two stationary side gear wheels, and in any position they can be driven by a crank inside of the car. As they are easily set at any angle, they are managed to guide the balloon in any direction—up, down, and to any side. It is not intended to go against the wind, but to take advantage of the currents, and to move in any direction to a favorable from an adverse current. The aerial voyage which the Capt. made from Lowell, was something of a circular journey, for he went up, off, and came home again the same evening without stopping at any half way house above, to take a luncheon.

Improved Saw.

Mr. J. H. Tuttle, of Seneca, Ontario Co., N. Y., has invented a new and useful improvement on saws, for which he has taken measures to secure a patent. The improvement is in the teeth—their construction and arrangement; it is not a rasping saw, but a grooving and planing one. Two fleame teeth are made at the usual distance apart, with their points set opposite to rip two fine grooves, and then behind two such teeth there is one set straight, which shaves out the wood between the two rip grooves. This is the way the teeth are arranged along the whole length of the blade. It may be supposed from the great age of the saw, that improvements on it have long been exhausted, but it often happens that these are just the kind of things on which great improvements are made now and then: —the steam engine of Hero was two thousand years old before any improvements were made on it; and it is only within the past century that the plow—the old time-honored plow—was raised from rude barbaric construction and form to its present scientific and princely position among machines. The proof of the value of any improvement, is its practical test —its use. This saw has been fairly and fully tried along with others of the common construction, and it has been stated that one man can do as much work with it in the same time as two with the old kind.

Recent Foreign Patents.

Propelling.—We learn by the London Patent Journal that a Frenchman named Alexandre Hediard, has recently taken out a patent in England for propelling, by laying down two horizontal cylinders, and making their pistons act alternately at the stern of the vessel, by hollow concave surfaces against the water to propel the vessel forward. The principle is old.

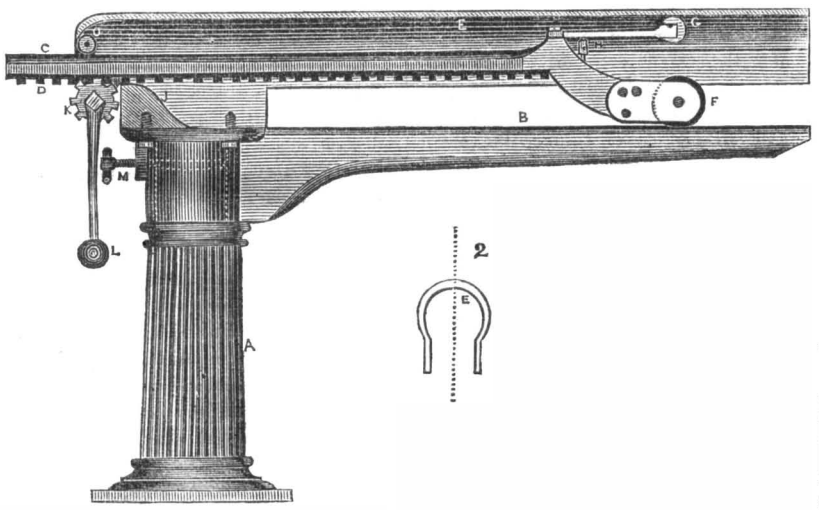
Artificial Fuel.—James Tarling, of Bayswater, England, has taken out a patent for a new fuel, which is made principally with refuse tan bark: to one bushel of old bark, previously dried, one quart of tar or one pint of resin oil is added, and the mixture well stirred This may be compressed into blocks in a mould —this part is old, excepting the mixture of resin oil.

Tobacco Pipes.—Wm. E. Staite, of London, has patented some improvements on pipes for smoking tobacco. He forms a lower chamber below the tobacco bowl, to receive the oil and condensed vapors of the tobacco, and prevent them from being drawn along the shank: the smoke passes through a diaphram to the mouth of the smoker. The condensing chamber is moveable and easily cleaned. This is an invention which we recommend to our German friends.

Improved Process of Casting.

We observed, says the Baltimore Sun, at the "Vulcan Works" the screw for the Steamer Monumental City, cast in one piece, 12 feet in diameter, weighing nearly four tons, which we learn was cast at that establishment by a new process invented by the proprietors, Messrs. Murray & Hazlehurst, assisted by their intelligent and experienced founder, Mr. James A. Bruce. These screws have heretofore been made by moulding from a wooden pattern, which was difficult to form correctly to the desired shape, and liable to warp from contact with the wet sand used in moulding. The improvement consists in dispensing with the use of a pattern altogether, and by means of guides and strikes, the mould is formed with mathematical accuracy, besides insuring a smoother and cleaner casting. The casting we saw was the sixth made by this process, the first having been made in January last. We mention this, as we observe that these screws are now cast in New York without a pattern.

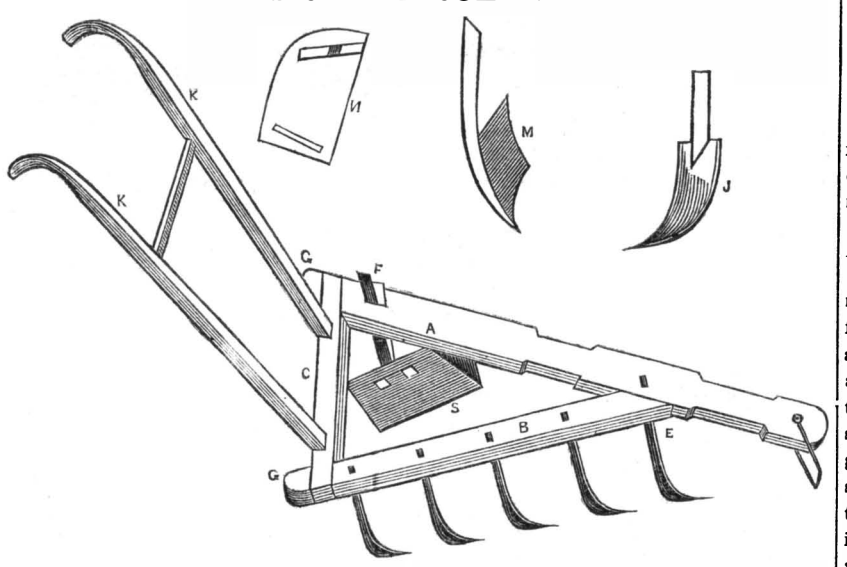
TINSMITHS' IMPROVED GROOVING MACHINE.---Fig. 1.



Mr. A. W. Whitney, of Woodstock, Vt., a well know inventor and manufacturer of tinman's tools, is the inventor of this improvement and he has taken measures to secure a patent for the same. This engraving is a vertical elevated section showing the interior: A is a pillar which is secured to the bench by screws passing through the flange which constitutes its base; B is the bed for laying on the sheet of tin to be acted on by the grooving roller; C is the rack bar with a rack, D, on it to be operated by the pinion, K, which is actuated by the crank handle, L. On the extremity of the rack bar is the grooving roller, F. G is a small friction roller attached to the rack bar by a strong steel spring. The tension of this spring, to press down on the grooving roller, F, is regulated by a set screw, H. By raising this screw the pressure is increased. E is a tube—we see its interior. Fig. 2 is an outline of its form and the dotted line shows where fig. 1 is taken. The grooving roller is therefore guided on every side to prevent all side motion. In the machine the tube, E, comes down somewhat farther than represented—near to the axis of the roller, F. O is a small friction roll at the other end of the rack bar, to keep it from rising, and I is a shoulder, on the head of which the teeth of the rack rest and slide, to keep it steady, and not hang on the teeth of the pinion, K. In the old machines the rack bar did not move in a tube. This arrangement makes the tool very compact, and gives it a very steady operative motion.

Another new feature about it, is the facility with which its position can be changed. The whole of the top part is constructed on a collar which fits around an axis of the upper part of the pillar, A, as shown by the dotted lines; this forms a socket joint, and allows the operative parts described, to be swung round to any position. The set screw, M, (shown passing in by the dotted lines) fastens the top part of its pillar axis to retain the whole firmly together. By unscrewing this set screw, the working parts are allowed to be moved round, and by screwing it up, the whole is fastened again. This arrangement makes this instrument very convenient and handy to work, and will enable a workman to perform more work in a given time—such as from week to week. This tool has been generally admired. It is now exhibiting at the Fair, and is for sale by J. M. Bruce & Sons, 186 Water street, this city.

AKIN'S COTTON CULTIVATOR.



This Cotton Cultivator is the invention of Mr. Sam. W. Akin, of Spring Hill, Maury Co., Tenn., and secured to him by patent on the 20th of March last year. A, is a beam 4 feet long, B, is an angling beam 2 f.t 10 in. and made longer in proportion for rows over three feet wide. C, is a cross beam, it is attached to the beams, A B, by screws or otherwise at G, G. K, K, are the handles, they are let into the cross beam C. The teeth are set into the angling beam, B, the fore tooth through both beams A and B at E, set at equal distances apart, two feet two inches to the hind tooth in the angling beam B, for rows three feet wide, and in proportion for wider rows, five teeth; the fore tooth 15 inches long, falling off one inch each tooth, making the hind tooth four inches shorter than the fore tooth, raising the fore end of the beam so as to range with the gear on the horse; making each tooth run the same depth into the ground, and making the draft lighter by bringing it nearer to the horse than it could be if the teeth were of the same length. Two feet two inches from the fore tooth, E, to the hind end of the mortice of the letter, F, where the scraper, S, and the adjustable plow, M, are fastened in by a wedge. The proportioning the teeth, making one inch difference in length, so as to make the fore tooth 4 inches longer than the hind tooth, is the most important part in constructing the Cultivator, by giving each tooth, the scraper and plow the same pitch or depth, causing the cultivator to run level performing well, with ease both to man and horse. The teeth may be either cast or wrought iron; he prefers wrought iron one inch square, flattened down two inches broad, sharp at the point, to prevent old grass from gathering on them, bent like a coulter. Each tooth plows its own furrow. If they were all the same length when the draft of the horse was brought upon them, the hind teeth, plow and scraper, as the case might be, would run too deep for the fore teeth, and could not be made to perform the work at all, as no two teeth would run the same depth, and the scraper would not do, as it could not be made to scrape, as it being behind would run too deep and would take more dirt from the cotton than it would bear. While arranged in this proportion, the plowman can take just as much or little as is necessary to cultivate the plant. Another advantage in proportioning the teeth in this way is, the depth can be regulated by altering the gear on the horse, making his traces longer or shorter; while, if they were all the same length, the horse would be too far from the cultivator, which is a great disadvantage in driving out at the end of the rows; while on the other hand, the horse is drawn up close to the cultivator, which makes his draft lighter. N is the board which keeps the dirt from falling on the cotton. It is fastened to the sloped end of S, and fastened to the beam, A, by a T headed screw bolt. The board is about 6 inches wide. The scraper, S, is a plate about 8 inches broad laid with steel, and it is from 12 to 14 inches long and is constructed to be set nearer or further from the row. The adjustable plow, M, is of a diamond form welded on a bar to fasten in the beam at the mortice, F. It is bent to turn the dirt like a mould board all one way; J, is a coulter plow made to fasten at F, like M. The operation of the Cotton Cultivator says Mr. Akin, is, first to harrow and scrape the cotton at the same time, using the scraper until the cotton wants hilling. He then removes the scraper and board that prevents the dirt from falling on the cotton and puts the adjustable plow in their place, runs round the cotton in the same way, harrowing and hilling, performing the same amount of labor with one hand and horse that it takes two hands and horse to do the usual way. When a harrow is used by itself, and a plow has to follow, the same saving in tending corn, by using a bull-tongue, J.

We have seen a great number of certificates from Southern gentlemen relative to the good qualities of this implement. More information may be had by letter addressed to Mr. Akin.

Improved Grinding and Pounding Machine.

Mr. Wm. Frost, of this city, has invented a machine upon a new principle of operation, for grinding, pounding and mixing ores, &c., and for which he has taken measures to secure a patent. Mr. Bagley, the Gold Pen manufacturer, is a partner in this invention, and it is supposed that it will supersede all other ore grinding machines now in use. It may be said to consist of "a wheel within a wheel;" the outside one being a revolving cylinder, its inside forming the bed, in which may revolve any number of smaller cylinders, or wheels, with smooth or corrugated surfaces, which will have two motions—one as it were on their own axes, and the other with the outer revolving cylinder. Its action is good, and it is capable of grinding the hardest quartz into powder in a short time, or any other substance. It is also capable of mixing paints, and is excellent as a rice huller, when the interior wheel is made with beetles on its periphery, to jog into openings in the interior bed.

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City Railroads.

Some time ago a special committee was appointed by the Common Council "to report a general plan of railroads for city uses." This committee, consisting of Aldermen Britton, Chapman and Dodge, have reported, and their report is printed; the document recommends the laying of a track through College Place, West Broadway, Varick street, and Sixth avenue, to 40th street. This city railroad is recommended as a useful auxiliary to city travel. The reasons given for constructing such a road, are ample and good. They state the only exceptions to the general favor with which this proposition is received, proceeds from those who are opposed to all city railroads on account of danger, &c., and those who are interested in stage lines. The first class of objectors are honest in their views, and the second are interested, (and who will say wrongfully?) in a peculiar business, which would, in their opinion, be injured if the project was carried out. A correspondent in the Tribune, of last week Thursday, attacks this report with bad argument and strong feelings. He abuses Alderman Shaw personally, because he offered a resolution to lay down a system of city railroads. He also threats him politically, a thing which we condemn as being illiberal and unjust: if a magistrate, or legislator, offers a motion, or advocates a resolution, which is esteemed to be wrong by any citizen, it is the duty of that citizen, as an enlightened and useful member of the city or commonwealth, to expose the error of the magistrate or legislator; but to threaten politically, is to betray an anti-republican spirit.

The strongest argument urged against city railroads, is the great expense, as the writer alluded to says: an expense probably equal to the Croton Water Works," and he states that "he is not prepared for that." Well, this is tantamount to saying the Croton Water Works found an opponent in him, the very same as city railroads,—if this exhibits an intelligent and liberal spirit, we do not know what such a spirit is.

We are advocates of city railroads, but we would not advocate going into their construction with red hot haste. First, let the city lay down one track—say the one up West Broadway and Sixth Avenue, and give this a fair trial before another one is laid. Experience is the best teacher, and as one line could be constructed for no very great amount, it is nothing more than the suggestion of prudence, to try one first, and be satisfied whether it works well or ill, before another one is made. If it works well, and we have no doubt but it would, another line could be constructed, and so on, year after year, until the whole system is completed.

Water versus Steam Power.

Two communications have appeared in our columns relating to this subject. The one which was published last week was furnished by a gentleman of great experience as a manufacturing engineer and manufacturer, consequently his opinions are of great importance. Some time ago we received a pamphlet containing a report upon this very subject, which was presented to a number of the citizens of Utica, by a committee appointed by said citizens, consisting of Spencer Kellogg, Andrew S. Pond and Edmund Graham. The report describes the investigations of the committee during a visit to Newport, R. I., and it is in favor of steam as an economical motive power, and since that period (1845) a splendid new cotton factory has been erected in Utica—the consequent of that report. Whether that factory will be successful or not, time alone will truly tell. It has not been long enough in operation to prove or disprove the deductions of the committee, but our opinion is, that it will disprove them, and we will give a few reasons for this opinion. The committee overlooked two very important points, in respect to economic results,—they are, the price of fuel and land carriage. They stated that they had a long conversation with Gen. James, of the James Mill, Providence, R. I., "who gave it as his opinion that steam power, all things considered, was as cheap as water power," but, they say, "they did not obtain from him all the information sought, which was the relative difference between water and steam, as a motive power." In comparing the expense of a steam mill (the Bartlett Mill, No. 1, Newport, R. I., of 11,000 spindles) with a water mill of the same capacity at Lowell, they make the difference in favor of the steam mill $216,51 per month, or $2,598,12 per year. By what rule is this accomplished? Why, because they say that the cloth made in the steam mill is better by a quarter of a cent per yard than that made by water power. They make out the difference in the price of motive power to be in favor of the water at $2,677,08 per year, but to overtop this, Mr. Fisher, of the Providence Steam Mill, told them that the same goods made in a steam mill of like material, with those made in a water mill sold for about one-eighth to ¼ cent per yard more in market, hence the profits mentioned were in favor of steam.—We don't believe that there is any correct data for such conclusions. In England and Scotland, the largest cotton manufacturing countries in the world, a reverse opinion has prevailed, but this is wrong also: if the motive power is regular, and the temperature of the mill regular, there can be no possible difference in the quality of goods made by water or steam-power. Steam-power may be profitable in Providence or Newburyport, and unprofitable in Utica. The price of fuel, the import and export expenses of stock and goods, are unequal in the two places. Utica has an inland carriage of 250 miles from New York, and if wood is cheaper in Utica than coal, let it not be forgotten that 2,100 lbs. of coal will raise as much steam as 6 cords of pine wood. At the North, New York is the grand mart for goods, and all the cotton has to be imported from Charleston, Savannah or New Orleans. It may be profitable, therefore, to use steam-power near New York, and unprofitable to use water-power or steam-power in Utica. It would be more profitable to erect a steam cotton factory near New York than any where else, except near coal mines, or in the Southern States. In Manchester and Glasgow, steam cotton factories are abundant, because fuel is cheap, and these two cities are cotton marts. As stated in the communication on this subject last week, we believe that steam power is more profitable at the South, near the cotton field, where the cotton wool can be purchased cheaper than at the North, as one sequence; and another is, cheaper fuel than in most of the situations near the great selling mart at the North.

Near Utica, at York Mills, there are a number of water-power factories; they will afford a good opportunity to test, by comparative results, the relative profits of steam and water-power as applied to the manufacturing of cotton goods. Our opinion is, that the steam factory will not show such a good column of profits as the water-power factories—time will prove whether we are mistaken or not.

Water-Proof Cloth.

The best water-proof cloth made, is that of india rubber; no other cloth can equal it; oil cloth comes next in order. Woollen and cotton cloth may be rendered nearly water-proof by dipping them in a solution of alum and the sulphate of copper. These two substances should be used in about equal quantities. The cloth should be dried in a warm room afterwards. If cotton cloth is dipped into a very weak solution of glue, and afterwards into a hot and strong solution of alum, and then dried at a high temperature, a very good water-proof cloth is the result, aye, and one that is nearly incombustible.

The bell of the steamer Rhode Island, which foundered at sea on her way to California, and some thirty or forty persons lost, has been picked up on the Azores or Western Islands, by a whaling bark. It is 200 pounds in weight, had the stamp of James S. P. Allaire, N. Y., 1836, upon it, and was attached to a broken beam.

Composition Roofs.

Within the past two weeks, we have received not a few communications about cheap roofing. One inquires about "the preparation of paper for roofs," and another about "a cheap composition for them." We will now present what we call a method of making cheap roofs.

Let the roof boards be fastened down as close as possible; then take cheap cotton cloth—say about 6d. per yard—and nail it down, taking particular care that no seam shall be over any board seam: then have ready a vessel with mineral tar, that is, the tar made at any coal gas works, and lay on with a large brush, or otherwise, a heavy coat of this, laying it smooth—then take a lot of clean sand, strew it thickly all over the tar; then take a roller, or something to roll over the sand, to press it thickly into the tar, after which sweep off the loose sand, give another coat of tar and sand in the same way, and the roof is complete. This makes a cheap and durable roof. Strong brown paper may be used as a substitute for the cotton cloth. A composition of one half pitch and one half of common tar, will answer as well as the coal tar; common tar can easily be made quite hard by pouring some of the oil of vitriol into it—this carbonizes and makes it into a charcoal. A roof may be made in sections as described, that is, one part finished before the other; its surface must be thickly covered with the sand. Some use fine gravel, but clean sharp sand is much better. A roof of this kind will last for a great number of years, and if it is well made, it is more incombustible, by far, than a shingle roof. Farmers would do well to use such kind of roofing for sheds and other kinds of outhouses.

Reform of the Patent Laws.

Of all the reforms which have been proposed for the Patent Laws, none seems to strike close enough at the root of the matter. The reform should commence at the Patent Office, for there is more injustice done to inventors there than anywhere else. Examiners of the Patent Office are a sort of "Privy Council," from whose decision no appeal can be taken, without a great deal of expense being entailed. When an Examiner makes an adverse decision, he does not like to recede from it, although it may be wrong—this is human nature; and there are some men of such dispositions, that they come to conclusions too hastily, and afterwards are too stubborn to recede from their positions. There are others, again, of a more noble nature, men who are cautious and candid in forming their opinions, and who, at the same time, have the right sort of manliness about them to recede from a wrong decision whenever they are convinced of their error. No man of the former class should be an umpire in any situation, for he has not the natural qualifications for the office. It has often happened that inventors have been put to great expense, simply by the whims of the Patent Office: many of them have had applications rejected without any good reason whatever, and have, by a journey to Washington, got all they asked for, and sometimes a little more. Some good and original inventors have been denied patents, while schemers, backed by good friends, have got patents for what was worthless and old. A patent was granted last May, for something which none of my Yankee cousins could guess, if they should try till thanksgiving. It was what? "An improvement on the 'Cotton Gin?'" No. "An improvement on the Steam Engine?" No. Well, don't guess any more, and I will tell you. It was for nothing less than a grindstone with a cord wrapped round its periphery to make the water fly out of the trough in which it revolved. Now, was not that a bright move? The applicant had some good friends, and this is the reason that a device, as old as the ruins of Nineveh, was awarded a patent by our enlightened and impartial Patent Office. As it will not be long before Congress assembles again, I hope inventors will get ready their petitions for a thorough reform.

One reform should be "the return of appeal money, and two-thirds of the Patent fee, to the inventor, if the decision of the District Judge, or a Circuit Court, is against the Patent Office." Another reform, is the return of models to rejected applicants. The Patent Office has no business to keep models for which patents have been refused. This reform would, no doubt, be agreeable to the Patent Office itself.

The great reform wanted, is an easy way to appeal from an *ex parte* decision, so as to have a fair examination of the claims of an applicant and the reasons of rejection. According to the law, as it now stands, this cannot be done. It would be a good plan for the Committee of Patents, to send for those who have got patents this year, and those who have been rejected, and take their evidence in relation to the trouble and expense they have been at, and the manner in which they have been treated; I know several who will pay all their own expenses in going to Washington, to give evidence before a Committee appointed by Congress. The great object of every reform should be "equal and exact justice."

JUNIUS REDIVIVUS.

New York, October, 1850.

Asphaltum Mining in New Brunswick.

We learn from a gentleman who has just completed a tour through the British Provinces, that extensive and very valuable mines of bitumen have been opened in the County of Albert, New Brunswick. The principal operations, at present, are upon an out-cropping, from ten to fourteen feet in thickness, situated about four miles from the wharves of the Petticodiac River, near its mouth. The deposit has been traced along the surface several miles, and the bituminous mineral appears at numerous points along a line of thickly wooded country sixty miles in length, and perhaps ten in breadth. A number of mining leases have been granted by the government. The opening of roads and the projection of a railroad are on the advance, and a general spirit of enterprise and competition by the inhabitants and persons from the United States, is exerting itself throughout that region. On the eastern side of the river, and above Belleveau village, settled by Acadian French, the asphaltum, or mineral pitch, occurs in a soft state, and resembles wax.

This bituminous district is described in Dr. Gesner's Geological Reports of the Province, published as long ago as 1840, and since he has successfully applied the material to the manufacture of gas, it will doubtless afford a new and valuable article of commerce. We recently published an analysis of this beautiful mineral in the Scientific American; we are happy in believing that its resources in New Brunswick are inexhaustible.

A few days ago the roof of a part of the coal mines of Pictou, Nova Scotia, fell in to the extent of thirteen acres; fortunately, at the time, the workmen were at the surface taking their breakfasts. A part of the railway, and a number of miners' tools were buried, and the company have sustained a heavy loss. It is stated that there is coal enough at the surface to meet the demand this season. As the mine is about 400 feet deep, the fall produced but little disturbance at the top of the ground, although the families of the miners abandoned their houses until the shock had subsided.

The Carleton Iron works, New Brunswick, which were destroyed by fire some months ago, have been re-built, and will soon commence smelting iron ore. The new buildings are of brick and stone.

Who will Accept the Offer?

"I will send a dollar bill to any person that will send the first number of the fourth volume of the Scientific American in good order, to me, by mail or otherwise, with this address, JOHN GARST, Dayton, Ohio.''

History of Propellers.

The work on Propellers and Steam Navigation, which we have in press, will not be ready for those entitled to it, until about the 20th instant; we shall then be able to fill orders to any extent.

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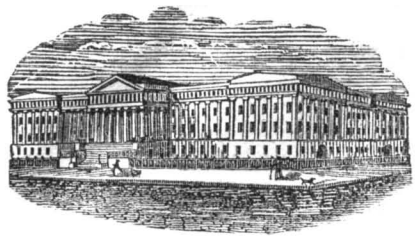

☞ Reported expressly for the Scientific American, from the Patent Office Records.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 1, 1850.

To Herrick Aiken, of Franklin, N. H., for improvement in wrought-iron Car-wheels.

I claim the combination of a rim, with arms at the ends of the spokes, by means of the inner flange and bevel, between the flange and opposite side of the rim.

To Stephen Bowerman, of Detroit, Mich., for improvement in Cotton-stalk Harvesters.

I claim the combination of two saw-teeth wheels, with the frame, and supported thereby, and the triangular pieces of iron for disengaging the stalks, in the manner and for the purposes herein set forth.

To A. Buffum & P. Thorp, of New York, N. Y., for improved Double-acting Rocker, for washing gold.

We claim the combination of the movable pan with the gold washing rocker, so arranged and operated as to give to the pan inside of the rocker a double rocking or vibrating motion, sidewise and endwise, substantially as described in this specification.

To W. P. Coleman, of New Orleans, La., for improvement in Mills for grinding.

I claim the elastic cushion inserted in the bottom of the socket, of the cock-head, substantially in the manner and for the purpose herein set forth.

To R. J. Colvin, of Lancaster Pa., for improvement in Slides of Seed Planters.

I claim the combination of the reversing slides with each other and the hopper, by which the machine can be readily adapted to the different varieties of planting, in the manner and for the purposes set forth.

To Reuben Daniels, of Woodstock, Vt., for improvement in Vegetable Cutters.

I claim the combination of the double edged reciprocating blade, with the hopper and removable bars, for slicing vegetable substances, as herein set forth.

To Halvor Halvorson, of Northampton, Mass., (assignor to Wm. M. Chace, of Boston, Mass.,) for improvement in Looms.

I claim the combination of the stationary circular plate, the gears, the circular box with the tubular shaft, H, and the main shaft, the same being for the purpose of effecting the rotations of the cam-shaft, K, without any such exposure of gears as is customary in most other looms, and which are not only often productive of accidents to attendants, or workmen, but often destroy or injure the shutters when thrown out of the lay by the action of the pickers.

I also claim the combination of mechanism for operating the harnesses, when they are constructed substantially as specified, the said combination consisting of the supporting or radial bars of the harness frames, the rocker shaft, *q*, and tubular shaft, *t* the arm, *v*, and its pin or stud, which enters the groove of the cam, and the endless chain and fixed pulleys, the whole being applied together and made to operate essentially as above described.

I also claim the mode of constructing each of the harness frames, viz., of a combination of a bar and thread carriers as applied together, and made to operate in the manner above described.

I also claim the combination of an endless belt and its projection or picker with each shuttle box and its picker staff, so as to constitute the floor or bottom of the shuttle box, and operate, and be operated in manner as described. This mode of constructing the shuttle box, in consequence of the belt moving with the shuttle, reduces the friction of the shuttle in its passage out of the box.

I also claim the combination of mechanism, for operating each picker staff, the same consisting of the cord and pulley attached to it and the main frame, the spring of the foot of the picker staff, the spring latch on the lay, and the discharging cam or plane affixed to one of the harness frames, the whole being as above described.

I also claim the above described mode of making the race beam, viz., with elevations or plates to extend above it, and between and above the lower warp threads, so as to constitute a support for the shuttle in its passage over the race beam; the same enabling me to protect the yarns from injury from the shuttle, and to run the loom at a greater velocity than it would be safe to operate it with a race beam constructed in the ordinary manner.

To J. J. Herndon, of Marlborough District, S. C., for improvement in Rice Harvesters.

I claim as my invention the application of the vertical blade and wing attached to either or both sides of a beam and their combination with each other, and the other parts of this machine running by hand or horse power.

To O. B. Judd, of Rockton, N. Y., for improvement in Saw Gates.

I claim *raising* and *lowering* the saw, for the purpose of using the whole cutting part of the same.

[The Patent Office is exceedingly generous in this case: we are happy to see its advancement in philanthropy.]

To Lewis Lupton, of Winchester, Va., for improvements in Dash-boards for Carriages.

I claim the arrangement of the winch-shaped hand and foot lever, in combination with, and attaching the same to, a jointed moving dash-frame; together also with the attaching of said jointed moving dash-frame to the running gear part of the vehicle, instead of to the body part of the vehicle, as is usual.

To M. M. Mathews, of Rochester, N. Y., for the use of Rosin-oil in Printers' ink.

I claim the employment of rosin-oil in the manufacture of printing ink, substantially as herein set forth.

To Wm. Markland & J. Milnes, of Lowell, Mass., for improvements in Weavers's Shuttles.

We claim, first, the combination and arrangement of the friction levers in weavers' shuttles, in such a manner that the lever shall be allowed to vibrate towards and from the bobbin, for the purpose of producing a more even tension, substantially as herein described.

Second, the combination and arrangement of a spring and cam surface upon the friction lever, in order that as the friction lever is raised from its seat, the compression may be made more or less as desired, substantially as herein described.

To Gelston Sanford, of Ellenville, N. Y., for improved Auger Handle.

I claim securing augers, and other tools, in their handles by means of a tube attached to the inner half of one part, and an eccentric attached to the inner half of the other part of the handle, the eccentric part passing into the tube and the eccentric fitting into the dovetailed grooved slot of the shank, substantially as herein described.

To Wm. W. Smith, of Boston, Mass., for improvement in Spring Callipers.

I claim the circular spring enclosed within the hollow head resting on the pivot on which the two parts turn, and acting on the two parts (or shanks) throwing them outward against the nut on the cross bar.

To C. S. Snead, of Louisville, Ky., for improvement in Grain Driers.

I claim the revolving barrel, consisting of the wheels, and the bars provided with arms, carrying scrapers, in combination with the troughs arranged one above another, in the manner substantially as herein set forth, for the purpose of drying meal, grain, &c.

[See an engraving of this apparatus in number 33, Vol. 5, Sci. Am.]

To Ashley Townsend, of Pavilion, N. Y., for improvement in the construction of endless aprons in threshing machines and grain cleaners.

I claim the method of constructing the closed metallic apron for separating grain in the manner described.

To Amos Westcott, of Syracuse, N. Y., for improved Door Spring.

I claim the door spring, consisting essentially of a spring, jointed lever, strap and curved track, the latter being of the form herein described, to control the action of the spring and the several parts, together with the door and the door frame, being arranged with respect to each other substantially as herein described.

To Isaac Woodward, of Mechanicsburgh, Ohio, for improvement in Straw Cutters.

I claim the combination of the moving cleansing bar, with the stationary blade, substantially in the manner and for the purpose herein set forth.

I also claim the treadles constructed and arranged substantially as herein set forth, in combination with the cutter gate.

RE-ISSUES.

To L. R. Livingston, J. J. Roggen & C. Adams, of Pittsburgh, Pa., for improvement in shanks of door-knobs. Patent dated July 7, 1846: improvement added Dec. 11, 1847.

We claim the method of making the shank for door knobs in two pieces, coupled together near the middle by a notched connection, and held together by means of the escutcheon at one end, and the latch-bolt (or by the tumbler that operates a latch-bolt) at the other, substantially as herein described.

We also claim the constructing the keeper and the lever fastener, of such shape and proportions that the keeper can be reversed in its position upon the latch plate, and the lever fastener be reversed in its position in relation to the keeper, for the purpose of adapting our improved lock or latch to doors, opening either to the right or to the left, substantially as herein set forth.

We also claim the connecting the respective shanks of the knobs to each other and to the lock or latch, by means of the tooth in the halved portion of one shank fitting into an aperture in the halved portion of the other, and the two being confined to each other by the tumbler, the tube projecting from the side of the lock or latch, and the escutheon secured to the door, substantially in the manner herein set forth.

DESIGN.

To Anthony W. Jones, of New York, N. Y., (Assignor to E. R. Brown, of Albany, N.Y.,) for design for Stoves.

Fair of the American Institute.

The Twenty-third Annual Fair of this Institute opened on Tuesday last week. We do not think there are a greater variety of articles than were exhibited last year, but the arrangement is altogether better. The machine room is larger, and this we are glad to see. The more room that is provided for machinery the more will always be displayed.

It is not our intention to speak of, or describe any machine or article that is futile or old, except it may be for the purpose of pointing a moral. As usual, there are a considerable number of well-known good looking articles, which appear like reserved stock—but let these pass. There are many new things, some of which we will notice briefly now, and others next week.

The show of agricultural implements is good and the stock large. Among them stands conspicuous a Grain Separator, of Benj. D. Sanders, of Holydays Cove, Va. It was illustrated on page 324 of our Fourth volume, and it has been patented since that time; it was never exhibited here before. The principle of its action is the separation of all impurities from grain by vacuum, according to the specific gravity of any impurity. This is the most perfect grain separator that we ever saw operate, for the amount of pressure can be regulated to the utmost nicety to separate chess, smut, &c. The chess ascends into a receptacle, and the good wheat falls. No other machine can separate, as it does, chess and wheat; there is only one machine of the kind in operation in this State, and it cleans 400 bushels of wheat per hour.

Ransom Cook, of Saratoga, exhibits his smoke consuming tuyere; this apparatus is entirely different from any of the common construction: it is applicable to all kinds of blast furnaces. Into the blast pipe there is conducted a small tube inside, leading from the stalk or smoke-pipe; therefore, when the blast from the bellows, or blower, comes to this tube, it is condensed, and as it passes out at the extremity of the small pipe spoken of, to go into the furnace, it expands and forms a partial vacuum at the end of the said pipe; this vacuum draws some of the smoke from the exit pipe, and returns it again to the fire. It is a smoke or carbonic oxide consumer, and saves about 25 per cent. of fuel. This is the most scientific smoke consumer that we ever saw, for there is no extra mechanical action brought into play by its operation—simply a law of nature; the blast can be regulated at will, either for a greater return of smoke, or a greater supply of oxygen.

These two machines described, it will be observed, are constructed and operated on scientific principles—both embracing the same classification in philosophy, yet very different in construction and application.

PARLOR GRATES.—Among the numerous and ingenious inventions to warm and beautify parlors, now exhibiting at the Fair, none attract more attention, or are more worthy of notice than those elegant "Cast Iron Parlor Grates," from the manufactory of Messrs. W. & N. Jackson, No. 238 Front street, and it is surprising to see to what perfection they have attained in this branch of business—so useful and necessary to our comfort. They have six new patterns on exhibition, one of which is principally made of German silver, and is called the "Jenny Lind" pattern. The contrast between these new improvements and the old-fashioned and unsightly brass grates, is very remarkable.

There is what is called a self-acting churn in operation; it does not deserve the name of "self-acting," for it is operated by a clock-power, wound up from time to time. Let us say, that for small churns, a good hint may be derived from this, so as to save time; by applying a man-power for five minutes, a rope or spring may be wound up, to drive the dasher for half an hour, so as to churn the milk.

Patent Ca

United States Circuit Court, New York District, 28th ult. In this Court, Judge Nelson presiding, a motion for an injunction prayed for, Goodyear against Day, for alleged infringement of patent for the manufacture of india rubber goods, was denied and the bill was dismissed with costs.

Another such case, Goodyear vs. Horace H Day, was decided on the 5th inst., at Trenton N. J. It occupied the court for two weeks, and was decided in favor of the defendant, Mr. Day. This case has been a long time on the carpet. Mr. Staples, of New York, was one of the counsel for plaintiff; Mr. Geo. Gifford for defendant.

A motion of injunction, prayed for Allen to restrain Sprague from infringing his patent for revolver pistol, was also denied, but a trial was ordered.

Samuel Colt, of Hartford, the Springfield Republican states, has instituted a suit for damages to the amount of $3000 against the Massachusetts Arms Co., of Chicopee, for an alleged infringement of his patent for revolving pistol.

On application of Bicknell & Jenkins, Mr. Justice McLean, in the U. S. Circuit Court at Columbus, Ohio, on the 17th ult., granted an injunction against Reynolds, Kete & Tatem, prohibiting them from making, constructing, selling or using the Woodworth planing machine in Cincinnati.

Wonderful Transformation.

The following is from the Derby (Conn.) Journal:—"One of the early trains of cars on the Naugatuck Railroad, ran into a hand-car when near the residence of Peter Phelps, Esq., Derby, yesterday morning, and smashed it up into a 'cocked hat.' We understand that there were six laborers in it, who barely escaped the same fate."

The London correspondent of the New York Herald states that the commercial tonnage of the United States is 20,000 tons more than that of England, the former being 3,150,000 tons, and the latter 3,130,000 tons.

[The above, we believe, cannot be correct, as Great Britain has no less than 33,672 sailing vessels and 1,110 steam vessels, and employ 236,000 seamen.

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TO CORRESPONDENTS.

"W. W. E., of N. Y."—Charles Hutchinson, of Waterloo, N. Y., has a patent for a machine to split and dress staves from the block; his machine is good. There is machinery in operation at Syracuse, N. Y., for spliting hoops and dressing them, also for barrel staves. If you write to Mr. Hutchinson, in Waterloo, he will give you the information. The sawed staves, we believe, are made at Lockport by a Mr. Smith, but we are not positive about this.

"J. J. H., of S. C."—We do not see any patentable point in your wheel. Its construction is the same as many others. The mode of making the shute is not patentable.

"D. V., of Ohio."—Yes, it appears that you have hit upon the very principle of Dimpfel, although your arrangement is a little different. It is not possible to tell but your feeder may be a very superior one, but you know that quite a number have been invented.

"R. M. A., of Conn."—It is not possible to know when or who makes applications for a patent—this is done secretly,—the Patent office alone knows. The cost for you we could not tell, till we saw the model—a loom is difficult to draw and describe in all its arrangements.

"H. G. P., of N. Y."—There has always been objections to rack and cog gearing, as crank substitutes. There is the same plan nearly as yours in "Stewarts Anecdotes of the Steam Engine."

"J. W. A., of L."—The use of Stirratt or Whitelaw's wheel, for a rotary engine, has been tried, but it is not so good as a cylinder engine. You can use the wheel freely.

"D. A. L., of Ohio."—We do not know whether stone ware is employed for pump pipes or not, but it is extensively used for water pipes in some places.

"H. H. E., of Pa."—We have been told that 1 part of litharge, 1 of black lead, ¼ of ground alum, some whiting or chalk, mixed with oil till all are in a proper consistency, makes a good cement for your purpose; we would add a little salamoniac along with the ingredients stated, say the same quantity as the alum.

"A. C., of Conn."—It is not possible for us to say whether your invention would be profitable or not; it appears to be new and good, therefore patentable. The article contains some new ideas, and will soon appear.

"A. W., of Ohio."—Do not try the circular bellows for an air pump; it will not answer; it cannot be made tight enough in the packing.

"B. M., of Ill."—We know of no grass cutting machine in use, but there is McCormick's and other Illinois reapers. The cheapest hay press is Brown's, which has been illustrated in our columns.

"H. S., of Ill."—There is Stiven's eccentric pump, which is a good one; we know nothing of the Chinese one. See advertisement in our last volume.

"L. S. H., of Me."—Your engine is a dead waste: the power is not in the size of the boiler, but the quantity of steam generated in a given time. The pressure of the steam on the square inch, and the velocity, multiplied, then divided by 33,000, will give the power. Get a good small engine—Wylie's for instance.

"E. C. A. C., of Ill."—Your subscription is now paid to No. 26 Vol. 7. We will try to furnish you with the numbers you lack to complete your volumes if you will inform us what numbers they are. We have changed the direction of Mr. R.'s paper as you directed.

"J. F. G., of Mass."—The best work on draughting for a new beginner is Minifie's, price three dollars—may be had at this office. The cost for binding your volumes will be 75 cts. each.

"J. C. B., of N. H."—A steamer leaves this port for Charleston every Saturday afternoon at 4 o'clock; Cabin fare $25, steerage $8.

"J. H. G., of N. C."—Our fees for making the necessary drawings of your invention preparing specification and superintending your application would be $20. The patent fee is $30 in all cases.

"G. W. L., of Pa."—We should charge nothing for the missing numbers. We cannot supply any in Vols. 1, 2 and 3, and have but about 40 numbers in volume 4. We thank you for your interest in extending the circulation of the Sci. Am.

"B. F. C., of Miss."—If your type setting machine will accomplish as much work as you represent it will and can be made so simple as not to cost over 10 or 20 dollars, it is certainly worth securing by patent. Please forward a drawing of your machine and if possible send us a model of it, for if it will accomplish half the work you say, you will have no trouble in introducing your invention at once.

"Engineer."—Yours has been received.

"L. P. S. of Conn."—Your plan for varying the blow is new and patentable, we believe, but you know there are other plans for varying the blow, likewise. We don't advise you to apply for a patent. Nasmyth's steam-hammer would answer you exactly, for the blow by it is vertical and can be regulated at will. Lewis Kick's steam-hammer could also be regulated in its blows at will.

Money received on account of Patent Office business, since Oct. 1, 1850:—

J. L. P., of Mass., $25; C. B. De La V., of N. J., $11; E. G., of Mass., $20; J. G., of R. I., $30; J. B. McC., of N. J., $20; W. S. K., of Conn., $20; H. F., of Ind., $5.

Bound Vol. 5, Now Ready.

Those desiring Volume 5 of the Scientific American are informed that we are able to furnish a few complete volumes, bound, at $2,75 each. Also, we can send by mail sets complete, minus No. 1 for $2. Volume 4, incomplete sets, comprising about 35 Nos., will be forwarded by mail on receipt of $1.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and the year the patent was granted (adding the month of the year when convenient), and enclosing one dollar as fees for copying.

Important Notice to us!

Whenever any of our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

ADVERTISEMENTS.

Terms of Advertising:

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them for any price.

CLOCKS FOR CHURCHES, PUBLIC Buildings, Railroad Stations, &c.—The subscriber having made important improvements in the apparatus for counteracting the influence of the changes of temperature upon the pendulum, and in the retaining power, together with a most precise method of adjusting the pendulum to correct time, are prepared to furnish Clocks superior to any made in the United States, both for accuracy of time-keeping and durability. They speak with confidence, from having tested their performance for several years. All clocks ordered and not proving satisfactory, may be rejected. Address SHERRY & BYRAM,
Oakland Works, Sag Harbor, L. I.

"Mr. Byram has established his reputation as one of the first clock makers in the world"—[Scientific American. 4 3meow*

FOWLERS & WELLS, Phrenologists and Publishers, Clinton Hall, 131 Nassau st., New York—Office of the Water Cure and Phrenological Journals. Professional examinations day and evening. 3 6m

COTTON LOOMS.—100 second-hand 4-4, have been well used but a short time, modern pattern, and as good as new; they will be sold low to close a concern, and can be seen at any time upon application to S. C. HILLS, Machinery Agent, 12 Platt st., N. Y. Letters must be post-paid 3 4

TO IRON FOUNDERS, &c.—Fine ground and bolted Sea Coal, to mix with moulding sand, an approved article ground from selected lump; Charcoal Foundry Blacking; Bolted Lehigh, Soapstone, Black Lead Foundry Facing; also Fire Clay, and Iron and Brass Founder's superior Moulding Sand, in barrels, for sale by G. O. ROBERTSON, New York. City Office 4 Liberty Place, Maiden Lane, near the Post Office. 3 4*

DR. STEWART'S SAFETY FLUID LAMP—Rights for any of the States, or for the whole United States, for this valuable Lamp, patented July, 1850, are now offered for sale on the most liberal terms. Land, or good trade, will be taken in part payment. Dr. FRANK STEWART, Swaim's Laboratory, Seventh st., below Chestnut, Phila. 3 4

PROSSER'S PATENT LAP-WELDED Boiler Tubes—Diameter, Number and Length of each at date:—

Inches.			In Stock.				Afloat.
1 1-4	-	-	999	7-0	-	-	——
1 1-2	-	-	164	10-6	-	-	——
1 3-4	-	-	25	10-6	-	-	——
2	-	-	215	10-0	-	-	——
2	-	-	1052	12-0	-	-	721
2	-	-	349	14-0	-	-	——
2	-	-	1221	15-0	-	-	——
2	-	-	77	4-9	-	-	——
2 1-4		-	758	15-0	-	-	——
2 1-2	-	-	544	15-0	-	-	——
2 3-4	-	-	514	15-0	-	-	——
3	-	-	255	15-0	-	-	——
4	-	-	4	15-0	-	-	——
5	-	1	1	15-0	-	-	——
6	-	-	14	15-0	-	-	——

THOS. PROSSER & SON, Patentees,
October 1, 1850. 28 Platt st., New York.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

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AMERICAN AND FOREIGN PATENT AGENCY.

WE WOULD remind our numerous friends throughout the country, that we still continue to conduct the business of procuring Letters Patent for new inventions in this and all foreign countries, where the right is recognized Since making arrangements with those eminent attorneys, Messrs. Barlow, Payne & Parken, Editors of the London Patent Journal, we have secured and managed through them, several foreign applications, with the utmost economy and facility. Inventors and others, desiring advice upon this subject, can correspond confidentially with the Editors of this paper.

WOODWORTH'S PATENT PLANING Machine 1850 to '56.—Decisions had the present year in the U. S. Courts, in every part of the Union, having fully and finally established all the claims of the Woodworth Patent, the subscriber is prepared to dispose of rights to use the machine in the Counties of Queens, Richmond, Rockland, Suffolk, Westchester, and the other unoccupied Counties and Towns in the State of New York and in Northern Pensylvania. Ninety-nine hundredths of all the planed lumber used in our large cities and towns continue to be dressed with Woodworth's machines, which may be seen in constant operation in the steam planing mills in New York, Brooklyn, Williamsburgh, Albany, Troy, Utica, Rome, Syracuse, Rochester, Lockport, Buffalo, Elmira, Gibson, Owego, Ithaca, Binghamton, &c. &c. Persons holding licenses from the subscriber are protected by him against infringements on their rights. JOHN GIBSON,
4 5* Planing Mills, Albany, N. Y.

DUPLICATES OF DRAWINGS.—One hundred or more copies of the drawings required by the Patent Office, can be furnished at short notice, and upon reasonable terms, by MUNN & CO., Scientific American Office, who have made arrangements to duplicate drawings of machinery and inventions, at prices varying from ten cents per copy, upwards.

PATENT METALIC OIL FOR MACHINERY—Warranted not to gum. Manufactured under Cumberland Brothers patent (April 6th 1849), by C. B. de la Vergne & Co., Elizabethport, N. J. Transparent metalic, adapted to light bearings, spindles, &c., will last a quarter longer than pure sperm. For burning will be found superior. Fluid White Metalic, of the consistance of cream, to be used without wick and tube, adapted to the oiling of engines, shaftings, &c. will last twice as long as pure sperm oil. Hard White Metallic, to be used instead of tallow, will last three times as long; when used in cylinders, the packing must be renewed. Blue Metallic grease, prepared for greasing the inside of boilers when thoroughly cleaned, that the scale which afterwards collects may be removed with one third the usual time and expense. It is also adapted to the greasing of cog wheels; and for the axels of vehicles it has been found to last more than four times as long as any grease ever used for that purpose.
KENNEDY & GELSTON, Sole Agents,
50 3m No. 8 Pine st. New York.

12 POWER PLANING MACHINES.—SCRANTON & PARSHLEY, New Haven, Conn., have now finishing off 12 power Planers that will plane 8 feet long, 27 inches wide and 24 inches high; these planers are of the first quality, are self-feeding every way; the table is worked by a rack and pinion; the bed is 12 feet long. With each planer there is a splining head and counter shaft, pullies and hangers. They weigh about 4000 lbs.; the price, boxed and ready to ship, is $625. Also 12 hand lathes, with back gear on iron shears, and legs 7 feet long, swing 20 inches, about 700 lbs. weight—$75. These lathes are of the first quality. 1tf

PATENT ROCK DRILLING MACHINE—The celebrated Rock Drilling Machine, invented by Messrs. Foster & Bailey, of this city, and described with an engraving on page 153 of Vol. 3 of the Scientific American; is now offered for sale in rights to suit purchasers. The machine has been thoroughly tested upon all kinds of rock, and its superiority over every other drilling machine that has yet been invented, must be apparent to every one who has had experience in using machines for this purpose. A silver medal was awarded to the inventors by the American Institute, and while it was exhibiting at the Fair for a few days, it attracted crowds to witness its simple but successful operation. A model of the machine, with the "Silver Medal," may be seen at the Scientific American Office, and any letters of enquiry concerning the purchase of rights may be addressed, (post-paid) to MUNN & CO.

P. S.—A valid patent is secured on the above, and the public are cautioned not to infringe the claims.

Patent Rights for sale for any State, county, or section, and working drawings furnished to the purchaser. 47tf

FACTORY AND WATER POWER—For rent or sale.—A factory building in New Brighton, Beaver Co., suitable for woollen or cotton factory, 40 by 96 feet, the stories high, with plenty of water power. The driving power is now being made new, and if applied for soon, can be made to suit the renter. Apply to A. W. TOWNSEND, near the premises, or to J. W. GILL, Wheeling, Va. 3 8*

ALCOTT'S CONCENTRIC LATHES.—We have on hand a few of these celebrated Lathes, which the inventor informs us will execute superior work at the following rates:—

Windsor Chair Legs and Pillars, 1000 per 11 hours. Rods and Rounds, 2000; Hoe Handles, 800; Fork Handles, 500; Broom Handles, 150, per 11 hours.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid). MUNN & CO.,
14tf At this Office

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN. Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton street. 1 3m*

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
48tf Painters and Chemists

COTTON, WOOLEN AND SILK MANUFACTURERS' DEPOT.—ANDREWS & JESUP, No. 70 Pine st., N. Y., dealers in articles for the use of Cotton, Woolen and silk manufacturers, and agents for the sale of shearing, carding, burring, napping, wool-picking, flock-cutting and waste machines, regulators, satinet and jean warps, &c. Weavers' reeds and heddles, bobbins and spools, of every description, made to order. Sperm, lard and olive oils and oil soap. 1tf

WOOD'S PATENT SHINGLE MACHINES—These excellent machines, illustrated and described in No. 23, Vol. 5, Scientific American, are offered for sale in Town, County and State Rights, or by single machines. There are three sizes, the first cuts an 18 inch shingle, price, $100; 2nd cuts 24 inch, price $110; 3rd, 28 inch, $120. Orders addressed to J. D. Johnson, Redding Ridge, Conn., or to Munn & Co., "Sci. Am." Office, will meet prompt attention.

The above machine can be seen in successful operation at P. R. Roach's mills, No. 138 Bank st., this city. 51t

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 46tf

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40tf WILLIAM B. LEONARD, Agent.

WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz. Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway. 51 tf

BRUSH'S IMPROVED DOUBLE-ACTING LIFT AND FORCE PUMP.—From the increased facilities of the subscriber, he is now prepared to furnish, at a reduced price, the most effectual, powerful, durable and yet simple Lift and Force Pump in use. For a house pump, factories, breweries, railroad stations, or any other purpose where a constant stream of water is required, they cannot be surpassed. The public are cautionod against an article purporting to be Brush's Pump, but are invited to call at or address 83 Pike Slip, and get the original. J. A. BRUSH, Inventor. 49 3m*

BURR MILL STONES.—We have made arrangements which will enable us to supply all kinds of French Burr, Holland and Esopus Mill Stones of the best material and manufacture, at the lowest prices. Burr Mill Stones made to order and warranted to be of the best quality; Burr Blocks for sale.—Orders addressed to MUNN & CO., post-paid, at this Office, will meet with prompt attention. 41tf

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JOSEPH P. PIRSSON, Civil Engineer,
46tf Office 5 Wall street, New York.

BOSTON LOCOMOTIVE WORKS.—No. 380 Harrison avenue, Boston, manufacture at short notice, Locomotive and Stationery Steam Engines, boilers,—iron, copper, composition and brass castings; copper work; Van Kuran railroad car and truck wheels, and all kind of railroad machinery.
DANIEL F. CHILD,
1tf Treasurer Boston Locomotive Works.

UNITED PATENT OFFICE IN PARIS AND LONDON.—GARDISSAL & CO., 29 Boulevard St. Martin, Paris, and No. 9 Arthur st. west, city, London. Patents procured in Great Britain and on the Continent: "Le Brevet d'Invention," weekly journal, published by the same firm. 3 4eow*

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Scientific Museum.

Electro Magnetism Triumphant Over Steam.

We have received a copy of the Brandon Post, Vt., with an article marked for our notice, with the above caption. It is from the pen of Thomas Davenport, of Salisbury, of that State, the man who constructed the first Electro Magnetic Engine in the world. He first quotes the article which appeared in our columns about Prof. Page's experiments, and then goes on to say—

"As I am confident that the results of the experiments of this enterprising and scientific gentleman will open the eyes of the people, and the purses of capitalists sufficiently to soon place upon our rivers, lakes, and railroads, a safer, more convenient and cheaper power than steam, I hope I may not regret so much in future as I have for ten years past, that the paralyzing hand of *poverty* has forbidden any attempt in myself to prove to the world, what, as early as 1833, I believed could be done in the space of five years. At that time galvanism appeared to me to have the same relation to the power of an electro-magnet that water does to the power of a steam engine, and I had no doubt but I could convince the whole sensible world of the fact, by fairly applying the power of a small electro-magnet to moving the lightest machinery. But I was disappointed. I found the power more controllable than the minds of men, and compliments more plenty than money."

He then states that he spent 17 years in applying electro magnetism to useful purposes and in 1838 ascertained that a bolt of iron could be drawn with great force into a helix of wire whenever the battery current was suffered to pass through the coil, and he then made an engine on this principle with two cylinders, very much like steam cylinders; for this invention he filed a caveat in our Patent Office, and sent several models to Europe, and obtained a patent in England, and a number of other European kingdoms.

We would state here, that Mr. Davenport's claims have been honorably mentioned in the Glasgow Mechanic and Engineers' Magazine.

In 1839 he experimented on a large scale with a magnetic helix two feet in length, and a bolt of iron two feet long and 2½ inches in diameter was forced into the helix with a power equal to 6 lbs. on the square inch. In January, 1840, he made an engine with two magnetic cylinders, weighing 50 lbs. each. The engine had a one foot stroke; his battery weighed 200 lbs. In that month he commenced publishing a newspaper which was printed on a press propelled by his engine: it made 120 strokes per minute, but worked off 10 papers in that time, or 600 in one hour: it was about one horse power. The price of zinc and acid did not, he says, exceed twenty-five cents per day—a very low estimate, we think. He has constructed more than a hundred electro magnetic engines of different dimensions, and his experiments with helices, using long and short, large and small, hollow and solid bars of iron, were very numerous. He concludes as follows:

"My press was first moved by a horizontal helix engine, next by a rotary, and lastly by a perpendicular double helix engine. Now, as Prof. Page's experiment with his 160 pounds of iron 'dancing like a feather in the air,' seems to be precisely like the experiment I made in 1839, when the 28 pounds of iron jumped through a helix two feet in length, by magnetic action, and, as the Professor's engine is constructed on the same plan and principle with my own, above described, I presume the scientific gentleman lays no claim to having presented any new route in his application of the power, or to have made any important improvement whatever in my invention. If Prof. Page by the completion of his engine, has finally come to the point at which I arrived ten years ago, in testing electro-magnetism as a prime mover in the arts, and has expended as much money in a series of experiments which he, of course, would be obliged to make, I think I could have saved him the needless expenditure of several thousand dollars, by giving him the results of some of my experiments in 1838-9-40, which I should have been happy to do, if I had been consulted in due time."

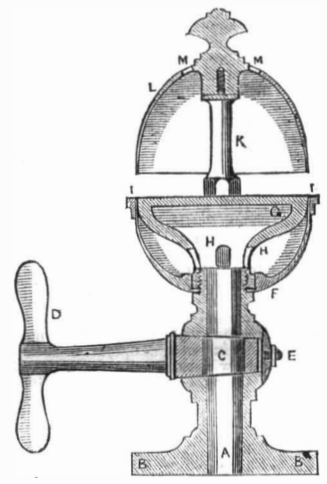
It seems that Mr. Davenport is not aware of the fact that $20,000 was appropriated to Prof. Page for his experiments—that they did not cost him one cent—and after all, here is a poor man who attained as great results ten years ago.

Will Mr. Davenport give us a sketch of his probable expenditure in his experiments? It is nothing more than just that the original inventor should have his rights acknowledged publicly. "Honor to whom honor is due," and the laborer is worthy of his reward.

The Steam Whistle.

As we have had not a few enquiries about the steam whistle used on locomotives—how it was constructed, &c., by those who have only heard the thrilling noise, we take this opportunity of illustrating and describing it.

The Steam Whistle is an apparatus attached to the boiler of a locomotive engine for the purpose of giving warning of its approach when running. The construction of the whistle is shown to one-quarter size in the annexed engraving. It is made of brass, and the



foot, A, is cast hollow, with a flanch, B, at the bottom, to bolt it on the fire-box: it has a cock, C, placed in it, with the handle, D, and screw, E, to keep it tight; the handle projects out to allow firm hold to be taken of it. The cup, F, is fixed upon the foot, A, by screwing the piece, G, upon it, and both are turned truly at their outer edges, leaving a very narrow passage, I I, four inches diameter, between them all round. The piece, G, is hollow, having holes, H, in its sides; and a pillar, K, stands upon its centre, on which is screwed the bell, L L, the thin edge of which is brought just over the opening, I, and half an inch above it.

When the cock is opened, the steam enters the cup, F, through the holes, H, and rushes out at the narrow slit, I, striking the thin edge of the bell, in a manner similar to the action in organ-pipes, and producing an exceedingly shrill and piercing sound. Some holes, M, are made in the top of the bell, to allow the steam to pass through, which improves the sound considerably. The size of the eccentric part where the steam escapes, and the depth of the bell part, and their distance asunder, regulate the tones of the whistle, from a shrill treble to a deep bass. The cock should be steadily opened, to adjust the quantity of steam, so as to produce the clearest sound. The steam-whistle is very effective, and its sound can be heard at a great distance.

Self-acting Hydraulic Syphon Ram.

We have had, says the Providence, R. I., Post, an opportunity of witnessing the operation of this wonderful machine for raising water from wells, cisterns, or rivers, by self-acting power. It is the invention of Dr. William Fields, of this city, on which he has secured a patent. Something of the kind has been in use in England for many years, but Dr. Fields has made many improvements on all other Self-acting Hydraulic Rams that have ever been invented.

[One of Mr. Field's Rams is on exhibition at the Fair, and it appears to be a most excellent improvement.

Improvements in Gas Manufacture.

The following is the article to which we referred last week, in relation to "White's Light." We are indebted to a recent number of the "Liverpool Mercury" for it.

"The subject of pure and cheap gas has of late been often brought under the notice of our readers, together with the means of improving and cheapening so important an accessory to domestic and social comfort. Perhaps there is no town in the kingdom more highly favored than Liverpool is with excellent gas, made from the best cannel coal, and which, we believe, continues to give general satisfaction. Until very recently, gas from any other material than coal was scarcely ever contemplated. The question was now and then mooted by timid philosophers, how long our black diamond mines would last with the extraordinary demand now made upon them by steam navigation, railways, &c., and predictions were freely hazarded that, within a few generations, this grand source of Britain's greatness would be found passing away for ever. With these fears and apprehensions we had no sympathy, being satisfied that there is a storehouse of coal in these islands sufficient for our wants, even for thousands of years. But it is delightful to find that science is ever on the alert to widen the field of supply for every necessary, as well as for every luxury of life; and, on this very article of gas, our own immediate neighborhood furnishes an illustration of the truth of this remark, as gratifying as it is important. We refer to the town of Southport, one of the most delightful watering places in the kingdom, having been now for nine months past splendidly lighted up, through the whole of its extent, by Mr. White's patent hydrocarbon gas, made from resin or tar, and water, no coal being used except to heat the retorts. We had recently an opportunity of fully examining into the whole process of manufacturing this gas at Southport, and of carefully observing it in the streets and shops of the town, and confess both the surprise and the pleasure it afforded us to find a gas of surpassing brilliancy and purity, and so entirely free from smoke that the ceilings of the shops and houses were untarnished by it, produced so easily and rapidly under this system. It is additionally pleasing to find, that while the brilliancy and purity of the gas is decidedly superior to that from coal, it is produced at a much less price—perhaps at about one-half; and, there being a large meter on the gas house, we had ocular demonstration that the rapidity of production is about thrice as fast as from coal retorts of a similar size, while the labor of attending to the whole is not one-half. Statements so much at variance with past experience may scarcely obtain credence; but an hour's ride from our Exchange will enable any one to see and judge for himself. That a vast improvement has been achieved in gas manufacture—the precursor, it may be, of still greater—is unquestionable; and for this Mr. Stephen White has amply merited the rich reward he is sure to obtain. Our spirited neighbor Mr. Coulborn, has had this gas in full operation at Egremont Ferry, as well as at the large hotel and adjacent buildings there, for more than two months past, and expresses himself in the highest terms regarding it. His apparatus is in daily operation at Egremont. We learn that its adoption is spreading rapidly around Manchester, where it is exciting the greatest interest, and that several large continental cities are now in treaty for it. Its future progress deserves to be watched with much interest.

[As many of our new subscribers have not seen the former accounts that we gave of this method of making gas, which has been patented in America, we would state that it is made from water decomposed in one retort, and resin gas in another, and the two gases proceed to, and are mixed in, a chamber or reservoir. As gas is a very important subject, we like to present all the information we can about it, on both sides. It is our opinion that gas can be made from coal, resin and asphalt, cheaper than from any other substances. The employment of any of these hydro-carbons for cheapness, depends on their local value: it is cheaper to employ coal in New York, but it would be cheaper to use resin in North Carolina; and in New Brunswick, Cuba and Trindad, it would be cheaper to use asphalt.

LITERARY NOTICES.

Dental Recorder—September number, Edited by Dr. C. C. Allen, 28 Warren street, N. Y. Published monthly at $2 per annum. It contains eight papers of superior merit, on Dental science, and should be read by every member of the profession. The doctor understands how to adjust the incisors and bicuspids with a strict regard to the science of mastication, and is no less fertile in thought and clear in elucidation.

Marine and Naval Architecture.—Number 10 of this incomparable work, by John W. Griffiths, Marine and Naval Architect, has just been issued from the press. In this number Mr. Griffiths takes up the subject of River and Steam Boats: we have read all that he has said upon the subject, and have been delighted with his views. Every American should own this book. There are but two more numbers to be published.

Iconographic Encyclopedia.—Part 12 of this unrivalled work on Science, Literature and Art, is just published, by Rudolph Garrigue of No. 2 Barclay st., this city; it contains no less than 20 different steel plate engravings, with 57 different scenes, a number of which exhibit the religious ceremonies and customs of the Hindoos, and others those of the Turks and other Orientals. There are also scenes of Spanish life, Russian life, &c. Each plate does not cost six-pence, and not one could be purchased singly for double that amount. The work is now about half completed, and when finished it will form the most beautiful and entertaining work ever published in America.

Dictionary of Mechanics and Engine Work—Number 17 of this work, published by D. Appleton & Co., Edited by Oliver Byrne, treats of gearing in all its details. This branch is treated of very fully.

Typographical Miscellany.—No. 7 of this excellent periodical, by Joel Munsell, Albany, contains a continuation of Printers and Printing in America, and sketches of the newspaper press. It is a good number.

Dictionary of Weights.—We have received from Messrs. Wm. Minifie & Co., of Baltimore, a Universal Dictionary of Weights and Measures, ancient and modern, reduced to the standards of the United States, by J. H. Alexander. This book is got up in the superb style of printing for which Messrs. Minifie & Co., are famous. As a standard work of reference, this book should be in every library; it is one which we have long wanted, and it will save us much trouble and research. It is for sale by Messrs. Appleton & Co., this city. The price is $1,50.

NEW PROSPECTUS OF THE SCIENTIFIC AMERICAN.

TO MECHANICS, INVENTORS, AND MANUFACTURERS.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Sixth Volume of this valuable journal, commenced on the 21st of September, offering a favorable opportunity for all to subscribe who take an interest in the progress and developement of the Mechanics' Arts and Manufactures of our country. The character of the Scientific American is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

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10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

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Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—now in press, to be ready about the 1st of October. It will be one of the most complete works upon the subject ever issued, and will contain about ninety engravings

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